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Brighter Outlook For News Print In Canada

Tangible Evidence of Steady and Progressive Growth In Demand Arouses Better Feeling In Industry—Manufacturers Enabled to Increase Their Ratio of Production to Capacity—Despite Lower Prices, April Figures For Exports of Pulp and Paper Show that Both Tonnages and Total Values Increased Over Last Year

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 27, 1929.—There can be no doubt that a much better feeling prevails in news print circles at the present time than for many months past. This has been brought about by the tangible evidence of a steady and progressive growth in the demand for newsprint, enabling the mills as a whole to increase their ratio of output to capacity.

The April figures for exports of pulp and paper show that not only has tonnage increased over last year, but total value as well, despite lower prices. Thus the value of these exports for the month was $13,269,297, an increase of $868,828 over the total for April last year. The tonnage of pulp exports increased from 56,609 to 57,538 tons and the value from $3,073,804 to $3,155,350, while the tonnage of news print increased from 140,011 to 162,381, and the value from $9,068,396 to $9,747,536.

For the first four months of the year the total value of the exports of pulp and paper amounted to $63,062,391 which was an increase of $1,387,798 over the total for the corresponding months of 1928.

Pulpwood exports in the first four months of 1929 amounted to 399,972 cords, valued at $3,575,602 which was a considerable decline from the 537,459 cords, valued at $4,770,423, exported in the first four months of 1928.

Of course, it is recognized that the summer may bring the usual seasonal falling off in demand, but nevertheless the feeling is that the industry is working back into a healthy position more readily than was at one time anticipated.

Mersey Paper Mill Progressing Rapidly

From present indications it is anticipated that the first news print machine in the plant now being constructed in Nova Scotia by the Mersey Paper Company will be in operation in October next, with a capacity of 125 tons daily, and that the succeeding month will see the second machine, of similar capacity, in operation. A third machine will probably be added in 1930, bringing the capacity of the plant to 375 tons daily.

An 8,000-ton steamship is to be put into service between the plant and New York, and it is understood that the output of the mill will be shipped to the *New York Times* under an arrangement by which the Kapuskasing plant, in which the *New York Times* is interested, will supply the *Mail and Empire* in Toronto. This arrangement will save freight costs for both.

St. Lawrence Paper Mills

The two new machines which have been installed by the St. Lawrence Paper Mills are not producing as yet, but will be put into operation as conditions warrant. The company now has six machines with a total capacity of 450 tons per day. The plans are to install two further machines when the time is considered ripe for such a move. Application has been made for listing the stock on the Montreal Stock Exchange.

Tariff Hits Lumber Interests

If the proposals in the new tariff bill introduced at Washington are put into effect they will adversely affect lumber interests in Canada and particularly the manufacturers of shingles. The 25 percent ad valorem duty on shingles and cedar lumber will, in fact, be a severe blow. At present 75 per cent of the shingles produced in British Columbia are exported to the United States, and much of this business would be cut off by the proposed tariff, to the advantage, it is thought, not of shingle producers in the United States but of manufacturers of patent roofing materials. Shingles now exported are sold at around $4 per 1000; the new duty would add $1 per 1000. As for other classes of products, the proposed duty of $1 a thousand on fir, cedar and western hemlock logs will also restrict trade. In British Columbia there are 35 shingle mills employing about 2300 men, with a payroll of $7,500,000 per annum. A prohibitive tariff would cut off more than $10,000,000 annually. Railroads would suffer loss of $5,250,000 in freight charges and the Province $1,000,000 in timber royalties.

Fight Over Power Rights

The Provincial Water Board of British Columbia has reserved decision in regard to the application by two power companies for the right to harness the Campbell River power on Vancouver Island. The companies making the application are the Vancouver Island Power Company, controlled by the British Columbia Power Corporation, and the Campbell River Power Company, controlled by the International Utilities Corporation.

Timber holders and logging operators are strenuously opposing the application on the ground that the power plans would result in flooding large sections of forest. They claim to have invested $25,000,000 in the section to be affected.

Manitoba's Pulpwood Resources

The Manitoba Paper Company is pushing its application for an enlargement of the reserved area set aside for the selection of pulpwood, the enlargement to include the stretch of country north of Lake Winnipeg, through which the Nelson River runs. Further, the company desires to include the territory on the west side of Lake Winnipegosis, where a heavy stand of pulpwood has been found.

Recent surveys of the timber on the east and west sides of Lake

(*Continued on page 30*)

Pennsylvania Paper Mills Are Fairly Active

Paper Board Manufacturers Continue to Campaign For Tonnage Orders At Attractive Prices In Order to Maintain Summer Operations—Building and Roofing Plants Working At Capacity to Meet Usual Seasonal Requirements—Coarse Paper Mills Less Busy

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 27, 1929.—Alternating days of lively and dull trading indicate a spotty demand for paper. There has been the usual efforts of the paper manufacturers and dealers to clear out stocks by special sales. Local mills are fairly active. Wrapping paper manufacturers and mills producing seasonal specialties are less active than a few weeks ago. Board manufacturers continue to campaign for tonnage orders at attractive prices in order to maintain summer operations. Building paper manufacturers and roofing mills are at capacity. Glassine papers continue to drag along in a highly competitive market.

As the few mills in the fine paper trade of this section begin to broaden operations the paper stock dealers are experiencing a spurt of buying for better grades of paper stock and a few of the commoner items used by the board mills. Book papers, soft white shavings, and kraft paper stock are more active, with little supplies on hand in warehouses. Prices are slightly higher. Mixed paper and news are also in demand at this time but prices remain unchanged locally.

Pusey and Jones Installs Paper Machines

The new paper making machines which are to be installed in the reconstructed plant of the Albemarle Chesapeake Corporation at West Point, Va., are products of the Pusey & Jones Company, paper making equipment manufacturers, of Wilmington, Del. These units are supplemented by the addition of seven Shartle Brothers Jordans, new beaters and the installation of three transformers of the General Electric type. The Jordans will be driven by synchronous General Electric motors, the same type of motors operating the beaters. The operation of beaters with synchronous motors has been in use only since 1922 and their satisfactory service in the manipulation of beaters in recent times is popularizing this method of driving by motors.

General Electric Equipment for Standard

New General Electric motors and sectionalized drives are being installed in the mills of the Standard Paper Company, of Richmond, Va., along with a model paper making machine of the Rice, Barton and Fales type of manufacture. As the new paper making unit of the Rice, Barton & Fales Company is being erected the plant is being fitted for operation by electric power by the addition of sectional drives with motors driving each section in conjunction with the use of a turbine generator. Three new beaters driven by the General Electric Company motors have been among the additional units installed. The Jordans are also being fitted with the General Electric motors. The Philadelphia branch of the General Electric Company has contracted for the electrification of the plant.

Dill and Collins Co. Mills Electrified

As the operation of paper mills through electrification becomes the popular and growing method of recent times, many paper mills long employing the older systems are now turning to this modern use of electricity in the plants. Among the older established mills now turning to electrical equipment for power generation are the Dill and Collins mills, which have been completing the modernizing of the plant at Richmond and Tioga streets. There has been added to the plant a transformer and switch board, all driven by the General Electric Synchronous motors. The Jordans have also been equipped with G. E. motors.

Diamond State Fibre Co. Adds Electric Motors

The Diamond State Fibre Company, of Bridgeport, Pa., has added to its electrification system new General Electric Synchronous motors. These have also been attached to the recently installed new beaters. There were added to the beater room machines two new beaters of the modern type to facilitate larger production of the fiber pulp.

Curtis & Bro. Mills Modernized

Through the electrification of the entire plant of the Curtis & Bros. mills has been under way for the past year or more it recently was completed and the paper making equipment brought entirely up-to-date in line with the plans of the heads of the firm, Charles M. Levis and William Mason, to expand production and to perfect the paper lines that are manufactured by this concern in printers papers and fine grades. All units have been motorized. Four synchronous motors are attached to the beaters, two to the Jordans, two attached to the paper machines and all pumps electrified. A new switch board has been installed. With the modernizing of the plant the Newark, Del., mills of the Curtis & Bros. Company have been equipped for handling the increased business which has followed with its retirement from the distributive branch of the trade and the confinement of its distribution to the paper merchants. The headquarters and executive offices are located in the Public Ledger Building, 6th and Chestnut streets, to which they were removed early this year when announcement was made that the local distributive warehouse and offices would be abandoned and the mills be confined to the production of fine papers that are now distributed over a broader field through various paper merchants in all sections of the nation. Many new papers have been perfected in recent times and these have brought increased distribution as the trade is impressed with the high quality of the output of book papers, covers and allied products produced under the Curtis and Brothers marks.

Scott Paper Co. to Operate New Machines

With the coming month the new paper making machine which the Scott Paper Company is installing in its plant at Chester, Pa., will be completed and ready for operation. The new paper machine, one of the largest tissue machines ever constructed, will be operated with sectional General Electric drives. It is being constructed by the Moore & White Company. While the new machine is being installed the Scott company is making temporary use of the Flat Rock mills of the Dill and Collins Company, in Manayunk, where the paper making machine has been devoted to the production of Scott tissues pending completion of the new mechanical units in the Chester, Pa., plant. With this new unit in operation next month the Scott Company will be among the largest manufacturers of sanitary products in the world and its plant the most extensive devoted to production of this class of paper goods.

Joint Paper Trade Meeting Held

Members of the Philadelphia Paper Trade Association joined with their brethren in the local industry in a review of the activities of the national association given by the organization for the benefit of the distributors, at the meeting held last Wednesday in the Bourse Restaurant. With Simon Walter presiding there was taken up the matter of nationalized paper trade activities and the work of the survey committee throughout the past year. Both wrapping paper distributors and fine paper dealers were enthusiastic over the accomplishments of the survey committee and the work in behalf of the welfare of the paper industry which is being carried on by the national association. There were open forum discussions of the problems of vital importance to the trade with which the national association is concerned and which are open to the local members for future action in co-operation with the national program.

Following the survey of the national body's problems the meet-

ng was devoted to individual opinions on the paper market of oday. One of the important speakers on this question was Thomas K. Fort, Jr., head of the Thomas W. Price Company, whose many ears of experience in the local industry and whose expert knowledge of the trade and conditions places him in an authoritative position. He told the paper merchants that there was greater need of co-operation today and impressed upon his audience the necessity for close study of the business conditions existing at this time. He stressed the importance of keeping in touch with market details such as distribution, shipping, cost of conducting business and the exploration of new fields for paper consumption as well as closer co-operation of paper merchants with manufacturers and all with the work that is being done under guidance of the national association for the general welfare of the trade.

Old Lang Paper Mills Destroyed by Fire

Fire destroyed the former paper mills of the John Lang Paper Company, roofing manufacturers, at 24th and Vine streets, during the week. Although the mills had been abandoned more than a year ago under condemnational proceedings by the City of Philadelphia for the purpose of taking over the land as part of the Parkway project now in course of construction, it was not until recent months that demolition of the buildings was undertaken. The fire occurred when the building was half torn down and firemen were obliged to wreck the remaining portions of the huge smoke stacks that held upright following the fire, in order to remove a menace of falling bricks and debris. The fire removes the last remains of the Lang mills in this city which were in the heart of the business section bounding the Parkway. The new mills are located in Gloucester, N. J., on the former site of the Pusey & Jones shipyard.

Grellet Collins Honored

Among the 101 representatives of century old firms assembled at the banquet given by the Philadelphia Chamber of Commerce last week, the most highly honored of the occasion was Grellet Collins, president of the Dill & Collins Company, whose firm is the second oldest of the group of centenary concerns in this city enrolled among the Chamber's list of Philadelphia institutions. An engraved certificate of membership in the Centenary Association of the Chamber of Commerce was presented to President Collins during the banquet by Phillip H. Gadsden, president of the Chamber, in behalf of his firm, the Dill and Collins Company, as the second oldest of Philadelphia concerns founded back in 1690 and the oldest firm represented at the banquet. The Dill & Collins Company is direct outgrowth of the first paper mill in America, that founded by David Rittenhouse, along the banks of the Wissahickon in Fairmount Park. Expressing his thanks for the centenary certificate Mr. Collins said the firm's original mill of the 17th Century was a "very small affair with six men each producing by hand 200 pounds of paper per day with no protection by insurance or from fire." He contrasted this with modern news print paper production which at incredible speed in a single machine produced twelve miles of news print paper per hour. He further contrasted the durability of the old papers of our ancestors which he said, despite the chemistry and machines of today, cannot be equaled in point of wearing qualities and that there was much to learn from them regarding durability of papers.

Other paper manufacturers represented at the banquet which have been in existence for more than 100 years are the McDowell Paper mills, represented by Charles McDowell; the Shryock Brothers mills, Downingtown, Pa., with Philadelphia headquarters, by S. S. Shryock and Owen Shryock; and the Gibson McIlvaine Company, owners of paper mills, also located in Downingtown, represented by J. Gibson McIlvaine.

Appointed Hammermill Agent

ERIE, Pa., May 29, 1929.—The Hammermill Paper Company announces the appointment of the Tayloe Paper Company, Fort Worth, Texas, a branch of Tayloe Paper Company, Memphis, Tenn., as a new Hammermill agent.

A. H. Cohen Gives Stag Luncheon

A. H. Cohen, president of the Republic Bag and Paper Company, gave a stag luncheon for nine of his friends, at the Aldine Club at 200 Fifth Avenue, New York City, on Friday, May 24.

The guests were: H. M. Joyce, sales manager, Great Northern Paper Company, 342 Madison avenue, New York; Irving Goldstein, wholesale Florist, 740 Sixth avenue, New York; E. Schoenzerit Asst. vice president, Liberty National Bank and Trust Company, 150 Delancey street, New York; W. J. Sheridan, director of purchases, Panama Railroad Company, 24 State street, New York; Robert Friedman, president, Regal Doll Company, 200 Fifth avenue, New York; D. Kuhmarker, president, Kuhmarker Waxed Paper Company, 515 West 26th street, New York; Sol Gilman, president, Grand Bag and Paper Company 3489 Third Avenue, New York; Harry Kushel, president, National Consumers Paper Corporation, 3 Congress street, New York; and Mr. Davis, president, Majestic Cruller and Doughnut Company, 401 East 3rd street, New York.

Mr. Cohen evidently chose his guests with care, because although informal, they all hung on the words of Mr. Sheridan, who, buying everything for the Panama Canal and all its stores, sat on the other side of the fence from all the others, who were sellers of something.

The souvenirs of the occasion were a pair of seats, first row, center, in the Balcony of the Music Box Theatre, which is now showing "The Little Show." The event was so successful that everyone suggested that it be repeated, and Mr. Cohen is accepting the suggestion.

Hawley Tariff Measure Passes House

WASHINGTON, D. C., May 28, 1929.—The Hawley Tariff Bill passed the House today with a comfortable majority. Changes made in the schedule, affecting the paper industry, are as follows:

Sodium sulphate and salt cake has been taken off the free list and made dutiable at $4 per ton. Other alterations are:

Uncoated papers, including wrapping paper, wholly or partly decorated—4½ cents a pound.

Embossed or lithographed papers—Reduced from 18 to 10 per cent ad valorem.

Paper, wholly or partly covered with metal of solutions, per ream of 480 sheets—Decreased from 5 cents a pound and 20 per cent ad valorem to 5 cents a pound and 18 per cent ad valorem.

Decalcomanias in ceramic colors, weighing not over 100 pounds per 100 sheets and 20 by 30 inches in dimensions—Increased from 70 cents a pound and 15 per cent ad valorem to $1.40 a pound and 15 per cent ad valorem. Weighing over 100 pounds—Decreased from 50 cents a pound and 15 per cent ad valorem to 35 cents a pound and 15 per cent.

The farm element did not succeed in getting additional duty on casein. It remains at 2½ cents per pound, as at present.

News Print in Australia

The proposal to manufacture newsprint in Australia, which has been in the wind for many years, is receiving renewed attention as a result of statements made recently by the Prime Minister, according to the Paper Division of the Commerce Department at Washington, D. C. Speaking in the Federal Parliament the Prime Minister declared that the Ministry still adhered to its offer made in 1925 to pay a bounty of £4 a ton on news print manufactured in Australia from Australian timber. He took occasion to announce that it has been definitely proved that news print can be produced on a commercial basis from Australian hardwood and that two large enterprises contemplated entering this industry. Their arrangements, he said were practically complete. Speaking of the proposed bounty, it was stated that this would be paid only when a minimum of 30,000 tons a year was produced, but in his opinion that quantity would be very greatly exceeded. A provision will be inserted in the Bounty Bill that if a company makes a profit of more than 10 per cent the bounty will be as proportionately reduced.

Record Production At Toronto Board Mill

New Plant of Canadian Paperboard Co., Now Tuned Up to Satisfactory Output, Is Expected to Run Over 1,800 Tons During May—Mill Is One of Best Equipped Units of Its Kind In the Dominion—Company Will Be Able to Reduce Costs Materially This Year

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 27, 1929.—Canadian Paperboard's annual statement, which is expected within the next few weeks, is expected to reflect the severe competition that exists in the paper board industry and also the fact that the company's expenses for the fiscal year ended March 31 have been exceptionally heavy, due to the bringing into production of the new Toronto plant. Production at Toronto is expected to run over 1,800 tons for the month of May, which will be a record production.

The mill was turned over originally about six months ago, but has only been tuned up to a satisfactory production within the past six weeks. It has a rated capacity of from 75 to 100 tons and its record to date is 89 tons a day. This production, of course, is over three times the production of the Campbellford mill, which was closed down some months ago, but which had only a capacity of 25 tons a day. As the new Toronto plant of the company is one of the best equipped units of its kind in Canada, it is expected that, with the maintenance of steady production at this plant throughout the present fiscal year, the company will be able to reduce its costs materially, and that as against the high costs and narrow profit margin which has faced the company in its past twelve month period.

Quinte and Trent Valley Paper Company, a subsidiary of Canadian Paperboard, is reported to be earning its preferred dividend approximately one and a half times. Its statement will also appear at the same time as the Canadian Paperboard report, and will cover a fifteen month period, a change in the fiscal year having been made to bring the company's operations into line with those of the parent company.

Presentation to Backus Official

Charles H. Davis, for the past several years a resident of Fort William, and one of the most popular officials of the Backus Brooks Company there, left the city a few days ago to assume a new position with a large construction company operating in Western Canada. At the plant of the Great Lakes Pulp and Paper Company, Ltd., Mr. Davis was honored by the mill and construction staffs and presented with a leather club bag as a token of the esteem in which he was held by the members of the staff under him. Mr. Davis went to Fort William from the Fort Frances office of the Backus-Brooks Company near the start of construction activities at the big lakehead plant. An engineer of recognized ability, he has held for the past two years a highly responsible position in connection with the erection of the various units of the Great Lakes mill. His departure from Fort William severs numerous intimate relations, especially among mill colleagues with whom he was very popular. In taking leave of Mr. Davis the plant officials wished him every success in his new field. Prior to being associated with the Backus-Brooks Company, Mr. Davis was connected with the Canadian Pacific Railway.

Ontario Forestry Management Stressed

Forestry management as distinct from forest exploitation was advocated by B. K. Sandwell, formerly professor of economics at McGill University, in an address before the Toronto Rotary Club a few days ago. Scientific management of the forest itself will induce it to replace, year by year, the full amount of all that is taken from it by industry and all other causes, he pointed out. The methods involved include a more selective cutting of timber and various devices for increasing the growth rate, together with the most efficient means of preventing fire and all other accidental loss. "It is no use," he said, "to spend money on managing a forest if it is going to burn down before you can collect the gains of your management." The new pulpwood conservation act adopted by the Province of Ontario a few weeks ago is significant evidence of the dawn of the new period, Mr. Sandwell remarked. "We have already public ownership of forests," said Mr. Sandwell. "This act practically sets up public control of the operation of the forests as the principle of the future."

Making Contracts for Pulpwood

The Thompson & Heyland Lumber Company, Toronto, are now making contracts with jobbers, farmers and settlers in various parts of Ontario for peeled pulpwood to be shipped in 1930. It is expected that the firm will contract for about 100,000 cords. In the territory along the T. & N. O., the Transcontinental Railway and from Sudbury to North Bay and south, the company have several rossing machines at work at such points as Norembega, Brower and Buskegeau. The pulpwood peeling season has started in the north and will continue until the end of July. It is expected that the amount of wood taken out will be about the same as last year and there is practically no change in prices. Peeled spruce and balsam, north of North Bay, is bringing $8.50 to $10.00 f.o.b. shiping point and peeled poplar $5.50 to $6.50. South of North Bay peeled spruce and balsam is bringing $10.00 to $11.00 per cord and peeled poplar $7.00 to $8.00. The variation in price is based on freight rates, location, etc. The demand for pulpwood, the firm says, is fair but shipments do not go forward to the mills in the Niagara district, New York, Pennsylvania and other states in one great forward movement as they did in former years, but are fed in car lots to the mills as ordered or required.

New Type of Pulpwood Vessel

Recent advices from St. Johns, Newfoundland, state that a model of a novel vessel to be known as Balfour-Fisher Dump Barge, intended to handle pulpwood more effectively, has been designed by two residents of Corner Brook. The craft will have collapsible sides, permitting, it is hoped, the instantaneous discharge of pulpwood without the laborious process of unloading by winches and slings. Walter Balfour and G. B. Fisher are the designers. A company has been formed to back the project and construction of two of the barges is expected to be completed by midsummer. If the vessels work successfully it is believed the invention may revolutionize the carrying and unloading of pulpwood cargoes on the North American Continent. An estimated saving of $1.50 per cord, as compared with the steamer cost of loading and unloading is expected. Another feature of the barge will be its shallow draught, doing away with the long tows from steamers to shore.

Notes and Jottings of the Trade

Figures just made public by the Bureau of Statistics at Ottawa show that wood pulp screenings, valued at $3,155,350, were exported in April. This was lighter than $4,014,293 in March, and about the same as $3,013,864 in April, 1928. Pulpwood exports at $512,714 were only half March's total of $1,329,896, and were substantially lighter than $624,975 in April last year.

The first cargo of pulpwood to go forward this year from the Bay of Fundy was taken from Fort William recently consigned to the Scott Paper Company at Chester, Pa.

Fraser Companies, Ltd., has in hand the development of a new sulphite pulp mill at Campbellton, N. B., which, when completed, will go far towards rounding out the company's basic output and enable it to carry to a still further stage of completion expansion plans upon which it has been working for upwards of the past two years. The new mill will have the effect of largely increasing the company's pulp output and will enable it to create a surplus over and above its own requirements, at least part of which will

be utilized by Rolland Paper Company, Ltd. At the present time the fine paper plant of the company at Madawaska, Me., is using the bulk of its pulp output.

The engineers of the Abitibi Power and Paper Company are now in Sault Ste. Marie, Ont., making a thorough examination of the company's plant there. According to George R. Gray, vice-president, the Abitibi company contemplates a large extension and structural improvements to the Sault mill. Plans are shortly to be prepared.

Canadian Wirebound Boxes, which operates a paper box plant at Montreal and a wirebound plant in Toronto, are soon to enter the British field, according to reports. After having surveyed conditions in the British Isles the company has entered into a contract to obtain exclusive rights for the manufacture of wirebound boxes under the four-one patent.

L. R. Wilson, Montreal, managing director of the Abitibi Power and Paper Company, and W. H. Smith, secretary-treasurer of the company, paid a business visit recently to the plants at Fort William and Port Arthur. In an interview Mr. Wilson stated that all the mills of the company were now running on a standard basis of production and no curtailment of operations is forecast. All machines at the lake head units of the company are functioning and will continue to operate at near capacity. Mr. Wilson stated that the news print situation now appeared to be more satisfactory than it had been for some time.

Pulpwood production in Nova Scotia this year, according to estimates, will create a new record for the province and although the cuts from Crown lands are not available for export in its unmanufactured state, the cuts on freehold properties are unusually large. Already the stream of tramp steamers has started to ply between Nova Scotia ports and those of the United States Atlantic seaboard and before the season closes it would not be surprising if over 300,000 cords are shipped to the United States for manufacture.

Arthur G. Pounsford, manager of the Port Arthur Division of Provincial Paper, Ltd., returned recently after an automobile trip throughout the various states of the Union. Mr. Pounsford visited several paper mills in Wisconsin Rapids, Ladysmith, and other parts of Wisconsin. He states that the mills of the Port Arthur division are operating at full capacity and will continue to do so as the company has on hand a number of important contracts.

Forest rangers in the employ of the Forestry Department of Nova Scotia kept a record of pulpwood exported from the province last year and reported a total of 194,673 cords going to the various foreign markets, chiefly to the United States. The rangers found, also, that 669 saw mills operated, producing 226,180,935 feet of lumber. The pulpwood cut was taken chiefly from Victoria, Hants, Halifax, Picton, Lunenburg, Guysboro and Antigonish counties.

The Ontario Department of Lands and Forests is calling for tenders for the right to cut pulpwood and other timber in certain areas of the Sudbury district. Bids will be received up to August 26th.

The Lincoln mill of Alliance Paper Mills, Ltd., at Merritton, Ont., has been down for a week while repairs were in progress. Renovation of the Lybster mill of the company has been completed and the plant has resumed operations.

The death took place in Toronto a few days ago of William George Wilson, who for thirty years had been associated with S. J. Moore in his various corporations. For thirteen years he was manager of the Eastern Sales Book Company, New York, and for eleven years manager of the F. N. Burt Company, from which he retired three years ago.

George Carruthers, president of the Interlake Tissue Mills, Ltd., head office Toronto, was in Montreal last week attending a meeting of the Council of the Canadian Pulp and Paper Association. A pleasant incident of the meeting was a dinner tendered to S. J. B. Rolland, of the Rolland Paper Company, Ltd., on the occasion of his 78th birthday.

Good Progress on Board Mill at Harriman

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, May 28, 1929.—Satisfactory progress is reported in reconstruction work on the plant of the Mead Paper Board Corporation at Harriman, Tenn., where several months ago the waters of the Emery River overflowed the town and put a check to building and equipping operations at the new mill.

At the time it was believed the loss would be tremendous, extending to $200,000 or more, but this estimate was revised subsequently when some of the material stored near the plant was located some distance away, where it had floated, and was salvaged.

The new plant will cost approximately $1,000,000 and it was about three-fourth completed when the flood came. Built of brick and cement and steel, the new plant withstood the onslaught of the waters which virtually submerged it.

There was much work to be done after the waters subsided as about four feet of mud had accumulated. Only those who passed through the 1913 flood in the Miami Valley appreciate the sticking qualities of flood mud and the task that must have been faced by the cleaners and rebuilders at Harriman.

The new equipment, some of which had been stored outside the new mill ready for installation, and which was washed away, was returned and gone over carefully. It was made as good as new before attempts were made to place it in the mill and any sections that did not come up to specifications and requirements were discarded.

Approximately 15,000 cords of wood stock gathered for the opening of the plant were saved though much of it had been carried some distance from the mill.

Unless something intervenes, it is expected the mill will be ready for operation by July 1, according to word received here this week. The task of rehabilitation has been greater than anticipated, but things are in such shape that the Dayton men behind the enterprise and their associates, now are elated over the prospects.

One thing is certain, when the mill is placed in running order, it will represent the last word in board manufacture.

Package Paper Co. Moves To Holyoke

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 27, 1929.—The Package Paper Company of Springfield has definitely decided to leave that city and signed a lease last week for space in the former Hadley Thread mill now owned by the City of Holyoke Gas and Electric Light Department. The concern will occupy about 50,000 square feet of floor space on two floors. Machinery has already been shipped and it is expected that the plant will be in full operation here by July 1.

It employs 100 hands but this number is likely to be increased. It has been located in Birnie avenue in Brightwood for the past ten years. The New York & New Haven Railroad has agreed to build a spur track for its needs. Low electric rates, low water rates and low taxes are assigned as the principal reasons for coming to Holyoke.

The firm is a converting concern, making specialties, wrappers for novelties, sweets and the like. It also includes a transparent line.

The Brightwood plant that it outgrew and abandoned is to be occupied by the National Bread Wrapping Machinery Company of Nashua, N. H., a subsidiary of the Package Paper Machinery Company.

Perkins Take Out Insurance for Employes

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 27, 1929.—Benjamin F. Perkins and J. Louis Perkins, sons of the late J. Louis Perkins, have taken out about a half million dollars worth of insurance for their employees on the cooperative plan, as a memorial to their father. Each of their employees can secure $1,000 insurance on very favorable terms. The policy was written by the Travelers Insurance Company of Hartford, Conn.

Paper Demand Fairly Satisfactory in Boston

Standard Grades of Fine Paper Reported to be Moving In Normal Manner — Coarse Paper Market Continues Practically Unchanged—Some Box Board Manufacturers Are Operating On Only Part Time Schedule—Specialties In More Favorable Position

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 27, 1929.—Various statements are made in regard to the paper market, but the average condition is apparently fair. Standard lines of fine paper are reported to be moving normally in some quarters. At one office it was stated that there was more demand and more sales in high grade lines. In fact, the demand seems to be increasing. In one of the fine writing paper centers, however, it is said that orders are not being received in very satisfactory volume at this time and that a hand-to-mouth policy prevails. The kraft market remains in about the same condition, with a normal demand.

Some of the box board mills are operating only part time, but the recent somewhat encouraging advances gained are firmly held, according to reports. The range for chip board prices remains, as a rule at $35 to $37.50, although some dealers have received word from a few manufacturers that their minimum figure is $37.50. The quotation for filled news board is $37.50 to $40. Higher prices prevail for thinner board. There is a more favorable condition in specialties. One mill has orders booked three or four weeks ahead on a specialty.

Old papers are rather quiet, but fairly steady. The gunny bagging market is reported in an unsatisfactory condition. Jute stocks are not in particularly good demand, although domestic rope has a fairly satisfactory call around 5 to 5¼ cents. New cuttings are in good demand, with prices holding firmly. Old rags are fairly steady, according to some, while others find a spasmodic market. Roofing rags continue firm, with a moderate request. Dark cottons are quotable at a minimum of 1.60.

Paper Merchants Outing Program

Members of the Boston Paper Trade Association will gather at the Charles River Country Club, Newton Center, Mass., Tuesday, the 11th, for the regular June meeting, and also expect to disport themselves in golf, baseball and other diversions. This is the fourth consecutive year that the association will have had the outing at the Charles River Country Club. The privileges of the golf course have been extended to the association for the day.

The program includes the following: From 9 to 10 o'clock, golf tournament starts, entries to be made with the golf committee; 10, tennis doubles and an old game (more or less sheetage); 10:15, green paper rolling; 10:45, golf pale; 11:15, paper wrestling (scissors hold allowed); 11:30, ringing (on and off); 12:15, buffet luncheon in the locker room; 12:30, striking out (merchants vs. manufacturers); 1:45, gather in locker room: 2, luncheon and meeting; 3:15, clock golf tournament.

Herbert C. Ham, the chairman of the sports committee, has arranged a novel program of varied activities, with suitable worth while prizes offered in each event. The list has been prepared carefully, so as to give everyone an opportunity to enter his name in at least two events. The other members of the committee are T. Charles Casey, Charles W. Fields, Arthur F. Fay, William B. Livermore, William J. McLellan and T. C. Walsh.

This is the seventh year's play for the handsome silver golf championship cup offered by the Boston Paper Trade Association, which must be won three times to become the permanent property of the winner. In the meantime it remains in the custody of the winner of the best net score each year until the succeeding year's play and until some one shall have won it three times.

Members will give bon voyage to President Hubert L. Carter, who sails from Montreal June 12 for a summer in Europe. The other officers of the club are Albert R. Smith, first vice president; Charles A. Esty, second vice president; T. H. Casey, treasurer, and F. Bendel Tracy, secretary.

E. D. Bement is chairman of the golf committee and the other members are Norman Harrower, W. E. Porter, Jr., C. S. Proctor, William N. Stetson, Jr., and Jesse G. Swift.

Butterworth Staff Reorganized

A reorganization of E. Butterworth & Co., Inc., a paper stock concern, a subsidiary of Edwin Butterworth & Co., Ltd., Manchester, England, effective June 15, has been made. Charles H. Wood, for a considerable period president, has become managing director of the Boston and New York offices, with headquarters in Boston. Mr. Wood has been with the company more than half a century. Horace B. Sargent, for the last 35 years with the Boston office, has become president, and Gordon T. Emerson, for many years a salesman, working from the Boston office, has become vice president. Bion B. Wheeler, New York, has been chosen treasurer, vice Lewis Jennings, who resigned May 13. Mr. Wheeler will be manager of the New York office. William F. Ebner, of the New York office, will be assistant treasurer and Herbert B. Hollis, of Boston, clerk.

News of the Trade

Arthur E. Ham & Sons have added a new line to their papers, Monoplane Bond, made by the P. H. Glatfelter Company, Spring Grove, Pa. This paper is watermarked and ream wrapped, manufactured in white only and in standard sizes and weights.

James L. Ham, of Arthur E. Ham & Sons, has just returned from a ten-days' trip through New Hampshire and Vermont. All sections of Vermont report an unusually late spring, the snow having disappeared only in the last few days. Business in that state is fair, but the weather is said to have been a handicap to business.

Stimpson & Co., Inc., have become distributors of the Evergreen lines of the Hoberg Paper and Fibre Company, Green Bay, Wis., including paper towels, toilet papers and napkins.

Charles W. Fields and S. W. Bartlett, of the Baird and Bartlett Company, have returned from a trip to Lake Winnipesaukee, where they found the fishing rather good.

C. A. Wiswall, treasurer of the Wakefield Paper Box Company, Wakefield, Mass., has returned from a vagabond cruise to the West Indies, visiting Havana, Cuba, and Castilla and Tela, Spanish Honduras. In Spanish Honduras he called on a tribe of Carib Indians. He was away about two weeks on this trip "out of the beaten track."

The McQuillen associates of Storrs and Bement Company will have their outing June 1 at the Webber Duck Inn, Wrenthan, Mass.

The sales meeting of the Storrs and Bement Company, May 24, was attended by about 35. A. F. Mackay, of the Dexter Folder Company, and Alfred Vose, of the Vose-Swain Engraving Company, gave talks.

Mr. Lacey, of the Chemical Paper Manufacturing Company, Holyoke, Mass., called on the trade recently.

The Arnold-Roberts Company has added two lines. One is Caslon Bond, a water-marked sulphite bond, of unusual value, made by the Munising Paper Company, Munising, Mich. The Boston concern will carry large stocks of this paper. The other line is Penn Wove Book and Cover, of handmade finish, a product of the Jessup & Moore Paper Company, Philadelphia.

The New England Sales Office of Meek & Whitney, Inc., with the mill sales department represented at 260 Tremont street by John A. Andrew, vice president, has taken over the entire sales of

the Allied Paper Mills, Kalamazoo, Mich., in the six New England states. The department is building up a sales organization. Leonard R. Dix joined the staff today. Meek & Whitney are sending out price-lists from Boston and New York. The output of the Allied Paper Mills is 150 tons of coated paper and 150 tons of uncoated paper daily.

The Brown Instrument Company, of Philadelphia, has moved its Boston office from 161 Devonshire street, Boston, Mass., to 1107 Public Service Building, 89 Broad street, in the same city. This change has been made necessary by the need of larger quarters due to the rapid growth of the company's business in the New England territory.

Champion Coated Paper Co. Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, May 27, 1929.—Reports presented at the annual meeting of the Champion Coated Paper Company at Hamilton the past week were excellent, it was said, and indications point to another banner year for the paper mills owned by this enterprising concern.

The stockholders met at the company's office on North B street, Hamilton, and after discussing conditions in general and how recent improvements had resulted in increased business, re-elected the directors and officers.

The board of directors consists of Peter G. Thomson, who was responsible for the founding of the company; his sons, Alexander and Logan G. Thomson; Walter D. Randall, Scott Zeller, Harry G. Pounsford and Charles C. Benedict.

Peter G. Thomson again will serve as the company's president; Alexander Thomson, vice-president; Walter D. Randall, vice-president; Logan Thomson, secretary-treasurer.

Messrs. Pounsford and Benedict are the Cincinnati members of the board.

The Champion mills are among the show places of Hamilton. They are the largest of their kind in the country and improvements from time to time have resulted in keeping the plant up to date.

The Canton, North Carolina, plant of the company also is considered to be one of the best of its kind in the country. The Carolina mills are located in the pulpwood district.

E. G. Bullis Goes With Groveton Paper Co.

Emory G. Bullis, for many years connected with leading paper mills in the sale and distribution of their products and for nearly five years sales representative for the Oswego Felts Corporation, of Fulton, N. Y., has resigned his latter connection to accept a position as sales manager of the Groveton Paper Company, at Groveton, N. H. In his new connection he will be associated with Edward J. McDonnell, who recently took over the general management of the Groveton Paper Company, and who was formerly associated with the American Writing Paper Company at Holyoke, Mass.

In his recent connection Mr. Bullis has been interested chiefly in transforming mills formerly making news print papers to the making of more profitable grades. With the Oswego Falls Corporation he sold the products of four of their mills. In this new connection Mr. Bullis returns to the selling of high grade bleached sulphite papers, grades he was originally identified with when first associated with the paper industry.

Crown Willamette Makes Good Report

The report of Crown Willamette Paper Company, including subsidiaries, but not Pacific Mills, Ltd., for the quarter ended March 31, 1929, shows net income of $709,310 after interest and depreciation, equivalent after dividends on the preferred stock to 30 cents a share on the no-par common. This compares with $543,802, or 12 cents a share on the common in the first quarter of 1928.

St. Regis Makes General Repairs

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., May 27, 1929.—The St. Regis Paper Company and subsidiaries in a report just filed shows that its net income for the year ending December 31, 1928, was $5,952,315, equivalent after preferred dividends to $9.36 a share on the 600,000 shares of common stock outstanding prior to December 20 and to $7.50 a share on the 750,000 shares of common outstanding on December 31. In November of last year the common stockholders received rights to subscribe to 150,000 shares of common stock at $75 a share, payment for these shares amounting to $11,250,000 and being made on December 20 so that practically no benefit was received from these funds during 1928. Consolidated net income of the company and its subsidiaries in 1927 amounted to $1,133,594, equivalent after preferred dividends to $2.04 a share on the average number of shares outstanding during the year and to $1.62 a share on the 587,780 shares outstanding at the end of the year. The consolidated balance sheet, F. L. Carlisle, president of the firm, points out in his remarks to stockholders, shows current assets on December 31, 1928, of $24,727,931 of which over $17,500,000 was in cash and call loans against current liabilities of $2,576,732, a ratio of over nine to one. The more liquid conditions of the company's assets at the end of the year is indicated by comparison with the ratio as of December 31, 1927, which stood at better than two to one.

The explanation of this change in the company's condition appears in Mr. Carlisle's statement that during 1928, largely as a result of the sale by Northeastern Power Corporation of its holdings of New England Power Association common stock, the consolidated investment accounts was reduced by $7,572,512 or from $23,755,347 to $16,182,835. During this period the consolidated funded debt, including purchase money obligations, etc., was reduced by $1,382,180 and preferred stock of subsidiaries and parent companies by $907,000. On December 31, 1928, the St. Regis Paper Company held $1,500,000 shares of Northeastern Power Corporation common stock, representing over 52 per cent of the total outstanding, an increase of 47,340 shares over the number held in December of the previous year. The report, which represents for the first time a consolidated balance sheet and earnings statement of the company, shows that the total assets of the paper manufacturing and public utility properties in the St. Regis group amounted to $170,250,196 at the end of 1928, compared with $153,447,171 at the end of the previous year. The companies in the paper manufacturing group include the St. Regis Paper Company, St. Regis Paper Company of Canada, Ltd., Oswego Board Corporation, Panelyte Corporation, Harrisville Paper Company, New Hampshire-Vermont Lumber Company and Norwood & St. Lawrence Railroad Company. Those in the public utility group are Northeastern Power Corporation, Power Corporation of New York, Power & Electric Securities Corporation, Northern New York Utilities, Inc., Malone Light & Power Company, Fort Covington Light, Heat & Power Company, Milling and Lighting Company, Inc., Oswego River Power Corporation, Oswego Canal Company, Peoples' Gas and Electric Company of Oswego and Raquette River Power Corporation.

On February 28, 1929, President Carlisle notes that the company purchased the assets of the Bates Valve Bag Corporation, the largest manufacturer of multi-wall paper bags in the United States. There is no reflection of this purchase in the statements contained in this report. This corporation and its subsidiaries own plants for the manufacture of paper bags in several of the largest cities in the United States and Canada and it has originated and developed a patent system of packing cement, lime, gypsum, plaster and other rock products, also sugar, flour and fertilizer, including patented automatic machines for packing and patent paper valve bags. The corporation manufactures wire ties for cloth bags, retying machines and closing machines for open-end bags. It leases the use of its machines to cement and other manufacturers and also licenses certain paper manufacturers to make and sell its patent valve bag.

Paper Mill Improvements in Fox River Valley

Large New Boiler House Has Just Been Completed and Placed Into Operation by the Fox River Paper Co., of Appleton, Wis.—Equipment Consists of Four 507 H.P. Cross Drum Boilers, Each Having Westinghouse 5-Retort Stokers Set In Two Batteries

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 27, 1929.—The Fox River Paper Company, of Appleton, Wis., is now enjoying the advantages and efficiency of a large new boiler house just completed and placed in operation. The plan was designed by E. L. Small, chief engineer of the company, and the building was erected by the C. R. Meyer & Sons Company, of Oshkosh, Wis.

Face brick, reinforced concrete and steel were used in constructing the main building, which is 50 by 80 feet in size, and stands 75 feet high. A new brick smoke stack 220 feet long was also built. Windows in the building are 45 feet high, giving ample light.

Equipment consists of four 507 h.p. cross-drum boilers, each having Westinghouse 5-retort stokers set in two batteries. Each is provided with Copes feed water regulators and Hagen combustion control apparatus. Continuous blowdown equipment is also provided so dirty water is carried out of the system. Two turbine driven and one motor driven pumps supply the feed water. Boilers also are equipped with draft gauges and flow meters.

A track hopper large enough to receive two cars at once is part of the coal handling equipment and the coal bunker will accommodate 200 tons. A traveling weighboy has been included so as to record the amount of coal used in each boiler.

Wausau Dam May Be Enlarged

Enlargement of the dam owned by the Wausau Paper Mills Company, Wausau, Wis., will probably be undertaken this summer. A hearing has been scheduled by the Wisconsin Railroad Commission to determine the necessity of the improvement. The company also desires to raise the level of the dam. Another hearing was scheduled on the application of the Nekoosa-Edwards Paper Company, Port Edwards, Wis., to hold the level of waters at its dam at a stated maximum.

Consolidated Working Agreement Signed

Another year's wage and working agreement has been signed between the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., and the three labor unions of the paper industry. All permanent employees of the Consolidated mills will be required to join the union except in extenuating circumstances, a limited time being set in which they will do so. Specific rate advances were set for mechanics' helpers, depending on the length of service. The mills have been operated on a union basis for a number of years.

Tomahawk Reforestation

Purchase of 15,000 acres of land at 25 cents an acre has been made by the Tomahawk Kraft Paper Company, Tomahawk, Wis., from the Lincoln County Board. The land was all tax delinquent. The several tracts will be planted with trees by the paper company as a part of its reforestation program. The company is taking advantage of the state severance tax law which enables it to pay an annual tax of ten cents an acre, and a tax based on the market value of the timber, payable at the time it is cut. Considerable tree planting previously had been done by the company.

Wire Weavers Convention Held

The annual convention of the American Wire Weavers Protective Association was held last week at Appleton, Wis. Delegates from all parts of the country were present and discussed problems and business matters. John Curley, of Holyoke, Mass., is president of the association.

News of the Industry

L. M. Alexander, president of the Nekoosa-Edwards Paper Company, Port Edwards, Wis., lost four valuable automobiles in a fire recently which destroyed the palatial garage building at his home. The loss is more than $75,000. The building contained living quarters of the caretaker. Gasoline which accidentally became ignited caused the fire, and its spread was so rapid that nothing could be saved.

Foremanship training classes which have been conducted at various paper mills throughout the winter and spring have been closed for the season. With this new plan of holding classes at the mills in use for the first time, the attendance and interest were greater than ever before. It is felt by M. W. Smith, instructor, that a great deal has been accomplished by this educational plan. Arthur Bouffard has been appointed itinerant co-ordinator of the pulp and paper industry for next season and will handle this work at Appleton, Green Bay and Menasha, Wis.

Dr. Otto Kress, well known paper mill chemist of the Fox River Valley, is heir to an estate of $166,000, according to announcement made last week. This amount was left to him by his mother, Mrs. Christine Kress, upon her death.

After draining the tail race at the Combined Locks Paper Company, Combined Locks, Wis., the bodies of George VanBerkel and August Mollen, paper mill workers, were recovered. The men were drowned when their boat overturned while fishing in the Fox River near the mill.

To Be Superintendent of Pulpwood Terminal

[FROM OUR REGULAR CORRESPONDENT]

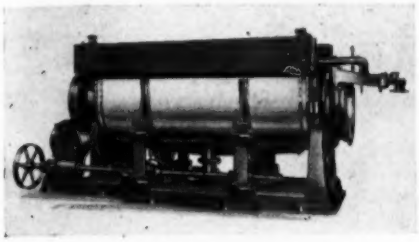
OGDENSBURG, N. Y., May 21, 1929.—Announcement has just been made of the appointment of George S. Sears as superintendent of the Ogdensburg pulpwood terminal to succeed Leon B. Shaffrey, who has been transferred to Corner Brook, N. Y. For the past several years he had acted as assistant superintendent at the terminal. It was learned that the first pulp shipment is scheduled to arrive here early in June, marking the opening of the shipping season at this point. A large amount of logs will be handled and much work will be available for longshoremen. The terminal is owned by the International Paper Company and the pulpwood will be transferred to the mill at Pyrites.

One of the finest timber holdings in Franklin County has been sold for lumbering operations to Harry P. Gould, head of the Gould Paper Co., Lyons Falls, and John T. Johnston, of Port Leyden, by the Rockefeller estate. The timber tract is known as the Lake Meacham Hotel Property and comprises 29,000 acres. It is expected that lumbering operations will be started at once although it is understood that the timber along the lake shore and bordering the highway will be protected so as to preserve the beauty of the region as far as possible.

Awarded $3,932 for Loss of Hand

[FROM OUR REGULAR CORRESPONDENT]

CANTON, N. Y., May 27, 1929.—A decision has just been handed down by the Department of Labor in which Paul Barriger, of Norwood, has been awarded $3,932.97 for the loss of his right hand. The case was before Referee James Richardson in various terms of compensation court here and was a few weeks ago completed following the taking of all evidence. Mr. Barriger was employed at the Norwood plant of the Martin Pulp and Paper Company at the time of his injury. His hand was mutilated when it was caught in a machine in the mills. He was making an instrument for use as a separator on the paper machines, the accident occurring last January while he was employed on the night shift.



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Chicago Paper Market Exhibits Steady Trend

Spirited Demand Experienced For Various Standard Grades of Fine Papers—Normal Conditions Prevail In News Print Industry—Ground Wood Papers In Better Request Than In Previous Week—Wrapping Paper Situation Satisfactory, With Prices Stable

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 27, 1929.—The month of May continues to show activity in various lines in the paper industry, with conditions, however, little changed over those of last week. Experiencing spirited demand again this week the fine papers, including the higher priced grades especially, seemed assured of reaching the summer season without any serious break in their fairly strong march toward a good year. Those grades of paper which are made use of in various commencement and graduation exercises were, of course, fairly strong.

News print continues on a satisfactory basis. Normal conditions prevail in this market. Ground woods, while not as strong as the better grades, showed an improvement over last week and a marked increase over two and three weeks ago. The price factor is still prevalent in the board market with price cutting said to be creating an unsatisfactory condition where, otherwise, the demand might make for good conditions. Wrapping papers are in good shape with prices stable. Tissues are reported as having a quiet week with no price changes. In the waste paper quotations only a weakness in the cheaper grades was reported with the better grades moving along in fairly satisfactory manner.

Paperboard Industries Association Plans

The next meeting of the Paperboard Industries Association is to be held in July at the Westchester-Biltmore Country Club, Rye, New York, according to reports given out at the recent Chicago meeting of the association and verified by H. S. Adler, secretary. Exact dates for the meeting are to be announced later. The location of the meeting will make for a possible combination of vacation and business, as the Westchester-Biltmore Country Club is in the center of things in the East. According to Mr. Adler the Chicago meeting, which was held at the Palmer House, May 22 and 23, was very well attended and satisfactory from every standpoint. The meetings of the Folding Box Group, the Paperboard Group and the Container Group were exceptionally well attended, but the Trade Practice Session which was held on Thursday morning, May 23, marked the high point of the two day activities, according to word from those who were in attendance. This meeting of the entire industry was held for further consideration of the Trade Practice Plan and to receive the report of the Board of Directors and of the Trade Practice Administration.

Both members and guests, of which there was a large number, enjoyed a noon luncheon on Thursday which went a long way in convincing those of the industry who are not members of the Paperboard Industries Association of the splendid things being done by that group that make it well worth their support.

Paper Salesmen's Golf Tournament

The first golf tournament of the year for the Chicago Division of the Salesmen's Association is now a thing of the past but it gave evidence of the popularity of these events throughout the entire season. Despite threatening weather conditions in the morning that brought a steady downpour of rain in the afternoon, thirty-five salesmen spent the entire day of May 23 either investigating bunkers and traps or swapping yarns. The winners of the various events as announced by Tom Donahue of the Warren Manufacturing Company, chairman of the golf committee, were as follows: Low net prize, Dick Ashby, Standard Paper Manufacturing Company; prize for low putts on the first nine holes went to Harold Leahy, LaSalle Paper Company, and for low putts on the second nine holes to Joe Heyer, of the International Paper Company. Harry Johnson of the Brown Company walked off with honors in the blind bogey competition. The tournament was held at the Elmgate Country Club and the attendance was a big boost to Tom Donahue's efforts to stage successful events.

Harold Knott, of the Eastern Manufacturing Company, president of the association, stated that the address given Monday, May 20, at the regular weekly meeting by Dr. George Craig Stewart was exceptionally well attended and that Dr. Stewart, who is chaplain of the entire association, gave his usual inspirational message. The meetings of the association come to a close on June 17 and are started again the first Monday following Labor Day.

Jim Coy, Jr., to Enter Paper Trade

The many friends of Jim Coy, of the Flambeau Paper Company, and ex-president of the Salesmen's Association of the Paper Industry, are going to get a big "kick" out of the announcement that Jim Coy, Jr., is to enter the paper game, choosing the D. W. Dietrich Paper Company as his first important move in following the footsteps of his well known dad. Jim Junior has just graduated from Knox College at Galesburg, Ill., and, according to D. W. Dietrich, is more than anxious to find out just what there is about the paper game that has thrilled Jim Coy, Sr., for lo! these many years. The younger Mr. Coy is reported to have laid an excellent foundation for his business career and is all set to firmly establish himself in the industry through his connection with the Dietrich organization.

The entrance of this younger member of the Coy family into the paper game and his choice of the Dietrich organization marks its second addition of younger members of a family who have made a name in the paper game. A short time ago Gerald Miner, son of H. J. Miner, of the Hollingsworth & Whitney Company, became associated with the Dietrich organization and has already shown that he learned a goodly part of his lesson from the example his father has set for him. The addition of both Mr. Coy and Mr. Miner to the Dietrich organization is significant of the progress that organization is making in Chicago and surrounding territory.

"Rags," the sparkling little pamphlet published "occasionally" by the Rag Content Paper Manufacturers, finds its way again to the desks of the Chicago trade, featuring a splendid story on "Judging a Printer by His Letterhead." The article is based on the supposition that a printer's letterhead is his ticket of admission to public regard. It quite naturally contains an excellent boost for rag bond or linen paper. Of unusual interest in the four page pamphlet is an item on matched business stationery. The idea evidently is to have matched stationery along with matched office furniture, etc.

Fashions and phases in American advertising progress feature the contents of Westvaco Inspirations for Printers, Number 45. This contribution of the West Virginia Pulp and Paper Company to the paper industry contains an interesting discussion of the typographic development of the magazine in America and also illustrations and editorial matter furnishing interesting comparisons developed in today's advertising, using typographical styles and designs of earlier days to emphasize a present-day thought. Paper merchants and the printing trade will also enjoy a short article on the "Chap Books" and on Will Bradley, their author, who began the publishing of these delightful little booklets away back in 1904. Concurrent with the appearance of the latest Westvaco Inspirations are the May 21 price list of the West Virginia Pulp and Paper Company on stock sizes and weights in the standard mill grades sold in original packing only. Fifteen grades of paper are listed, together with descriptions of each item and costs.

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Literature and a copy of our favorable Suction Roll Decision from the U. S. Court of Appeals sent on request,—no obligations. *Downingtown Mfg. Co., Downingtown, Pa.*

36—P.T.J.—5-30.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Indianapolis, Ind.—The United States Corrugated Paper Box Company, 1315 Martindale avenue, is said to be planning a new addition to its plant, to be two-story, estimated to cost in excess of $175,000, with equipment. A portion of the structure will be used for general storage and distributing service. H. J. Lacy is president.

Plainfield, N. J.—The Forney Fibre Company, 95 Boyd Avenue, Jersey City, N. J., a division of the Sonoco Products Company, Hartsville, S. C., has concluded arrangements for a lease of the former plant of the American Motors Company, West Front street, Plainfield, and will use for a new works. Possession will be taken on July 1, and remodeling and improving carried out. It is proposed to consolidate production at the new location and Jersey City plant will be removed to that place. Large increase in capacity will be made, with installation of additional equipment. C. H. Forney is president.

Los Angeles, Cal.—The Standard Paper Box Company, Los Angeles, has plans under way for a new plant on Moneta avenue, between 38th and 39th streets. It will be seven-story and basement, reinforced-concrete, 50x145 feet, estimated to cost upward of $250,000, with machinery. It is understood that the contractor for the general erection has been selected, and that no call for bids will be made. A list of equipment to be installed will be arranged at an early date, and contracts placed. Edgar H. Cline, Petroleum Securities Building, is architect.

Canton, N. C.—The Champion Fibre Company will build with its own construction forces a new plant unit, referred to in these columns last week, to be used primarily for laboratory service, estimated to cost close to $30,000, with equipment. It is understood that other part of previously reported expansion program will not be carried out at this time.

Newark, N. J.—John H. Carlo & Sons, Inc., 32 Kitchell street, paper mill supplies, has completed plans for a new addition to plant, to be two-story, 70 x 90 feet, reported to cost about $20,000. The structure will be used for storage and distributing service. A building permit has been issued and work will be placed under way at once. Rudolf Kruger, 60 Branford place, is architect.

Holyoke, Mass.—The Chemical Paper Manufacturing Company, Jackson street, is having plans prepared for a new addition to its mill, consisting of two units, two-story, 55 x 195 feet, and three-story, 37 x 75 feet, brick and steel type, reported to cost in excess of $250,000, with machinery. A list of equipment to be installed will soon be arranged. New structures will be located at the foot of Jackson street.

New York, N. Y.—The J. J. Murphy Paper Company, 102 Prince street, has leased the six-story building at 43-45 Wooster street, totaling about 35,000 square feet of floor space, and will occupy for new headquarters, storage and distributing service. It is understood that company will occupy the property at an early date. Present plant will be removed to the new location.

Sandusky, Ohio—The Hinde & Dauch Paper Company, Sandusky, is arranging for the construction of a new paperboard mill at Winnipeg, Man., to be carried out under the direction of the Hinde & Dauch Paper Company, Ltd., 43 Hanna street, Toronto, Ont. The plant will consist of several units, brick, steel and reinforced-concrete, with boiler house, machine shop and auxiliary structures, reported to cost in excess of $850,000, with machinery.

Camas, Wash.—The Crown Willamette Paper Company, 248 Battery street, San Francisco, Cal., has work under way on extensions and improvements in mill at Camas, and it is understood that entire expansion program, including a number of new additions, will be pushed actively for the next six or more months. The work will consist of a new bleach sulphite pulp mill, paper-making unit, converting mill and a group of miscellaneous structures. The converting mill will be used primarily for the production of paper towels, napkins and similar specialties. The new units will give employment to about 200 additional operatives, and are reported to cost close to $4,000,000, with machinery.

Cambridge, Mass.—G. H. Sweetman, 645 Atlantic Avenue, Boston, Mass., has filed plans for the construction of a one-story paper manufacturing plant on Portland street, Cambridge, for which general contract recently was let to Eldon Smith, 80 Ashford street, Allston, Mass. The new unit will be 50 x 150 feet, and is reported to cost more than $60,000, with equipment.

New York, N. Y.—The Forbes Paper Company, 32 Laight street, has leased a building at 362-364 West Broadway, and will use for extension in connection with storage and distributing service. Structure will be improved and occupied at early date.

Turner, Me.—The International Paper & Power Company, New York, is said to be planning extensions and improvements in properties of the Turner Light & Power Company, Turner and Buckfield, Me., including facilities for increased power supply as well as transmission service. The company has also secured control of water power at Brettuns Mills and Livermore, Me., and is reported planning development in connection with power expansion program in this district.

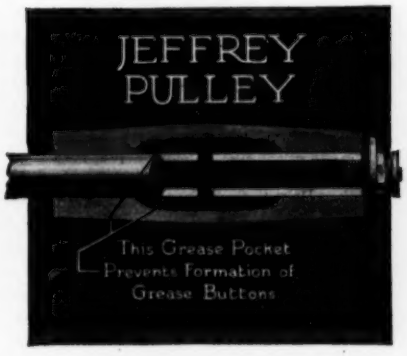
Philadelphia, Pa.—The former paper mill of the Lang Paper Company, Twenty-fourth and Vine streets, was damaged by fire, May 23. No estimate of loss has been made. The property is now owned by the city and will not be rebuilt. The Lang company removed its plant to Gloucester City, N. J., a number of months ago.

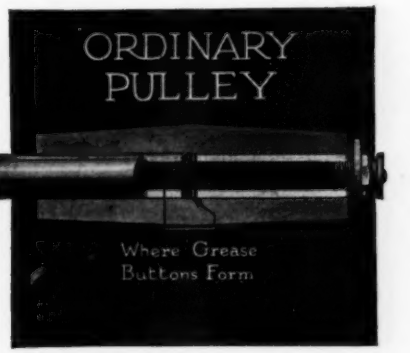
Marerro, La.—The Celotex Company, Chicago, Ill., manufacturer of insulating board from sugar cane waste, wallboard, etc., is running on a maximum production schedule at its main mill at Marerro, and plans were recently approved to develop increased output in the near future. It is understood that present capacity is about 30 per cent in excess of this time a year ago. Heavy orders have been booked and manufacture will be continued on present basis for an indefinite period.

Long Island City, N. Y.—Following recent organization of the National Container Corporation, referred to in these columns last week, arrangements have been made for financing for the new organization, which comprises a consolidation of the Columbia Corrugated Company, Inc., William Herman & Company, Inc., New York Corrugated Case Company, and the International Corrugated Box Corporation. The new organization will dispose of a preferred stock and common stock issue to aggregate about

No Grease Buttons
in Jeffrey Belt Carriers

Cross - section showing method of lubricating ordinary type of Belt Carrier. Grease buttons form at the points indicated by arrows and prevent new grease, when applied, from reaching pulley bearings.





Cross-section of Jeffrey designed Belt Conveyor Carrier illustrating how the large recessed grease pockets eliminate formation of grease buttons and hence provide positive lubrication of all pulley bearings.

A LARGE recessed grease pocket, a feature found only in Jeffrey Belt Carriers positively prevents the formation of grease buttons which are so commonly found in ordinary types of carriers.

In the average carrier, proper lubrication is impossible, once these grease buttons harden and regardless of how much force is applied, grease will not reach the pulley bearings.

A comparison of the two pulleys above will show you the importance of this grease pocket feature. The Pulley at the left illustrates the usual type of pulley. In this pulley the bearing surface which extends over its entire length fits close against the shaft leaving very little clearance between shaft and pulley hub for grease to enter. As the hub bearing passes over the grease resting in the small feed hole of the shaft, a glazing process is started which gradually hardens the grease into a grease button or cork. When new grease is forced into the hollow shaft, the grease button cannot be forced out of the feed hole, because of the resistance of the solid pulley bearing, and the bearings consequently remain dry. While in the Jeffrey pulley at the right, no glazing process is possible because the continuous action of grease passing over grease prevents the formation of the so called grease button thus allowing lubricant to reach bearings unobstructed.

Another important advantage the Jeffrey Carrier has, is the assurance of grease reaching the entire surface of the pulley bearing. The grease pocket effects a uniform pressure around the outside diameter of the shaft at both ends of the grease pocket, causing a sleeve or ring of grease to work outward, completely forcing old grease and dirt ahead of new grease, leaving the bearings covered with a film of new and clean lubricant.

Catalog No. 409-R which gives you complete information on Jeffrey Standard Belt Conveyors will be sent on request.

Jeffrey Belt Carriers are furnished with plain, bronze bushed or roller bearings in both three and five pulley types and with either channel iron or wooden bases. Also furnished with outboard bearings for wide belts.

THE JEFFREY MANUFACTURING COMPANY
931-99 North Fourth St., Columbus, Ohio

New York, Buffalo, Rochester, N.Y., Philadelphia, Pittsburgh, Scranton, Pa., Boston, Cincinnati, Cleveland, Detroit, Chicago, Charleston, W. Va., Milwaukee, St. Louis, Denver, Salt Lake City, Atlanta, Birmingham, Houston, Utica

Jeffrey Manufacturing Company, Ltd. HEAD OFFICE, Montreal; Branch, Toronto

Jeffrey Troughed Belt Conveyors handle coal over the bunkers in steam and power plants.

Jeffrey Troughed Belt Conveyors handle chips on the horizontal and on moderate inclines.

Jeffrey Flat Belt Conveyors with simple inexpensive idlers are excellent carriers for pulp lap.

$1,200,000, a portion of the fund to be used for merger purposes and for general expansion. Samuel Kipnis is president.

Holden, Norway—The Saugbrukeforeningen, manufacturer of pulp and paper products, has work in progress on a new addition to its mill to be equipped as an electrolytic bleaching plant. The new unit will produce caustic soda as a byproduct, and is reported to cost more than $400,000, with machinery. Other expansion will be carried out at the plant.

New Companies, Etc.

Jamaica Plain, Boston, Mass.—The Brown Paper Goods Company, 215 Centre street, has filed notice of organization to deal in paper goods in various kinds. Edgar L. McCallum is head.

Lockport, N. Y.—The Lockport Paper Company has filed notice of reduction in capital from 10,000 shares of stock, $100 par value each, to 100 shares of stock, no par value.

Brooklyn, N. Y.—The Mendelsohn Paper Company has been incorporated with capital of $10,000, to manufacture and deal in paper goods. B. Lipson, 353 Stone avenue, Brooklyn, is representative.

Dorchester, Mass.—The Union Paper Company, 1321 Blue Hill avenue, has filed notice of organization to deal in paper products. Harry G. Fredman heads the company.

Chicago, Ill.—The Statter Wall Paper Company, 5916 Northwest Highway, has been incorporated with capital of $20,000, to manufacture and deal in wall papers. The incorporators are N. H. Welch, Christopher Statter and A. J. Kirschten.

Rep. Kading Speaks on Casein Tariff Rate

WASHINGTON, D. C., May 29, 1929.—Representative Charles A. Kading, of Wisconsin, urging on the floor of the House that the tariff rate on casein be increased to 8 cents per pound instead of 2½ cents as now provided by the law and as suggested in the new tariff act, had the following to say:

"Casein is a product of the diary industry and made from skim milk by many of our larger creameries. The process is quite simple and consists of pressing the water out of the curd of sour skim milk, broken up, dried, and ground.

"Casein is a chemical used principally in the manufacture of coated paper. Some is used in making fountain-pen barrels, imitation ivory, glues, and sprays. From production figures taken from the Bureau of Agriculture economics it is shown that the industry has expanded in the mid-West section. As compared with 1922, the 1927 product of casein in Wisconsin had increased sixfold; in Minnesota, five and one-half fold; in New York, three and one-half fold; in Vermont, three fold; and in California, one and three-fourths fold.

"It is in Wisconsin and Minnesota that the best prospects exist for increase in production of casein. In many of the mid-West sections of the United States farmers deliver whole milk to creameries. The cream is separated from the milk and manufactured into butter or shipped to market. With the present rate of duty on casein these creameries can not compete with Argentina, which sends large quantities of casein to this country. The result is that former imports of casein have increased, and casein prices have fallen at the rate of about 3 cents per pound during 1928.

"It is claimed that Argentine is producing a better quality of casein than we have produced or that we can produce. This position, in my opinion, is untenable. If this industry is properly encouraged by a proper duty so that our creameries and casein manufacturers can afford to install proper equipment (which is rather simple, requiring only a cheese vat, a presser, a dryer, and a grinder) and receive better prices for their product, there is no question but what we will excel Argentine in production.

"The present duty on casein is 2½ cents per pound. The producers of casein in this country asked that the duty be raised to 8 cents per pound. The paper manufacturers opposed the same, and asked that the duty be not increased. This bill does not increase the duty but leaves it at 2½ cents per pound."

BETTER OUTLOOK FOR NEWS PRINT

(Continued from page 17)

Winnipeg have proved disappointing, only 2,500,000 cords being shown as available, much less than was anticipated when the lease was granted to the Manitoba Paper Company.

Rolland President Celebrates

Stanislas St. Jean Baptist Rolland, president of the Rolland Paper Company, of Montreal, celebrated his 78th birthday during the week with a family luncheon in the Windsor Hotel.

Back in the days when storekeepers lived over their stores the late Senator J. B. Rolland kept a stationery store in Montreal, and Stanislas St. Jean Baptiste Rolland was born in the rooms above the store where fashionable Montreal then procured its notepaper.

Mr. Rolland developed the business started by his father and later went into the paper manufacturing business where he built up what is now the largest of the French-Canadian paper companies, and one which ranks well up in the list with the larger English companies. One of his sons, Henri, who is with the Rolland Paper Company, has just retired from the office of president of the Canadian Manufacturing Company.

The luncheon in the Windsor Hotel was attended by his sons, Henri and Jean, the latter of Ottawa; his daughters, and their husbands, and his wife, formerly Albina Lantier, whom he married in September, 1877, and who is now 70 years of age.

International Secures Another Property

From St. John, N. B., it is announced that the J. B. Snowball Company, of Chatham, N. B., has received word from the W. C. Pitfield Company of Montreal that the option held by the Montreal firm will be taken up at maturity covering the company's mill property and Crown lands at or near Chatham. This is understood to mean a further addition to the International Paper Company's properties in New Brunswick.

K. V. P. Co. Makes Improvements

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, May 27, 1929.—The O. F. Miller Company has been awarded the contract to re-build portions of the parchmentizing plant at the Kalamazoo Vegetable Parchment Company. The building will be 332 by 210 feet in dimensions, one story, or approximately 70,000 square feet of floor space. It will be the southern most in the chain of K. V. P. units that cover a north and south area about a mile in length.

The new building will be of the highest type of construction, steel frame, steel roof, with saw tooth skylights, wood block, cement and Johns Manville acid proof floors, the latter to be laid in the machine room proper. There will be a basement about 8,000 square feet in dimensions under the machines.

"This improvement was voted in 1925," said Jacob Kindleberger, president of the K. V. P. "We have just gotten to it. In our program we class it as repair work. It is a replacement of units that must be abandoned and does not necessarily increase the output of our plant."

Eagle Paper Mill at Franklin Sold

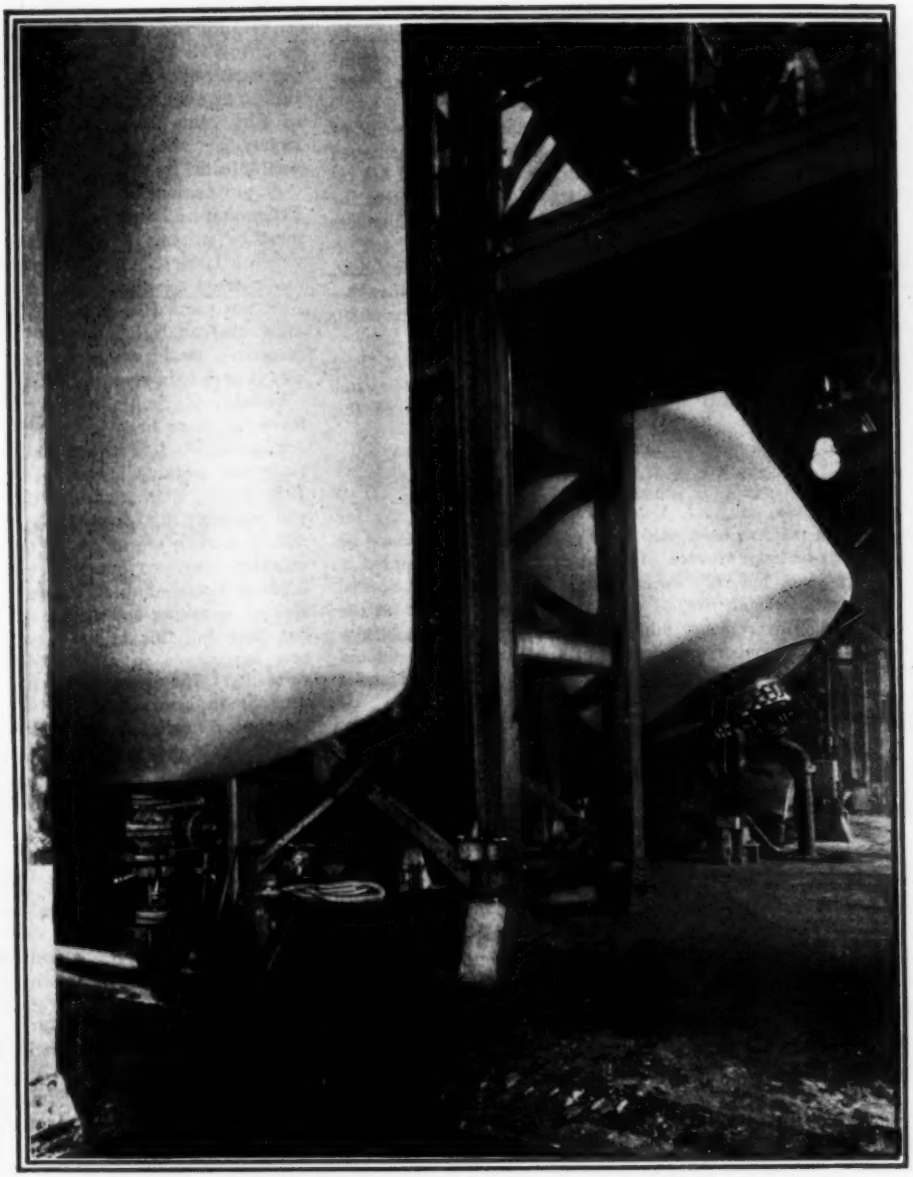
[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, May 28, 1929.—The old Eagle paper mill at Franklin, south of Dayton, was purchased the past week by the Van Horn Tube Company and a force of men is engaged in remodeling the building and putting it in shape for occupancy by June 1.

This company has interested in it some of the biggest radio tube men in the country, it is stated, and preparations are going forward for an expansion of the business. Employment of a force of 500 to 1,000 people is anticipated.

The Eagle mills were famous in their day. It is a far cry from paper making to radio tube manufacture, something undreamed of when the paper mills were in their heydey, but such is life.

IN SERVICE



Our Bulletin 508 on Sulphate Digesters is now ready for distribution.

A. O. SMITH CORPORATION

Milwaukee, Wis.

PRESSURE VESSEL SALES DIVISION

SULPHATE DIGESTERS

Obituary

Frank S. Aull

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, May 28, 1929.—Frank S. Aull, 74 years old, prominently known in the paper trade by reason of his association with the Weston Paper and Manufacturing Company of this city for many years, died Thursday at the Miami Valley Hospital, following a week's illness. He was stricken suddenly one week prior to his death, having suffered a stroke.

For more than twenty years he was secretary and treasurer of the Weston Paper and Manufacturing Company, and discharged the duties of this responsible office with great ability until his retirement one year ago. He was also a traveling representative for some years and retained his membership in the United Commercial Travelers at the time of his demise.

Mr. Aull had resided with his daughter, Mrs. C. E. McMakin, 237 Audubon Park, since the death of his wife. Besides his daughter, he is survived by a son, Charles J. Aull, of Cincinnati, and another daughter, Mrs. A. L. Valpey, of Chicago.

Funeral services were conducted Saturday afternoon at 2:30 o'clock from the McMakin residence and burial was in Woodland cemetery. A number of former associates and attaches of the paper concern attended the obsequies.

Frank H. Cleveland

[FROM OUR REGULAR CORRESPONDENT]

DALTON, Mass., May 27, 1929.—Frank H. Cleveland, 69, for forty years a resident here, died Wednesday night at his home on South street of heart trouble. He was in the grocery business in his earlier years but then entered the Crane mills and worked there 37 years, serving part of the time as superintendent of the Pioneer and "Government" mills. He was a member of Unity Lodge Masons, member and deacon of the First Congregational Church and of the Saturday Evening Club. He left a wife and a brother, Ernest, of Waterbury, Conn. The funeral was held Friday afternoon with burial in the Main street cemetery.

Alton Faunce

Alton Faunce, manager of the Pulp and Paper Department of Price & Pierce, Ltd., of 17 East 42nd street, New York, died at his residence, 15 Claremont avenue, New York, on Saturday, May 18, from heart trouble, aged 72. He was buried at Kingston, Mass.

Mr. Faunce had been associated with Price & Pierce, Ltd., since 1910, and previously had been in the pulp and paper business in Boston, Mass. He is survived by his wife and one son.

Frank A. Empsall

Frank A. Empsall, of Watertown, N. Y., a director and large stock holder of the St. Regis Paper Company, New York, died last Friday, May 24, in St. Vincent's Hospital, after an operation. He was 65 years old.

Born in North Adams, Mass., Mr. Empsall went to Watertown in 1907. He formerly owned the Empsall Department Store and in addition to his St. Regis holdings, was interested in various other power and paper concerns.

Brotherhood Propositions Defeated

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., May 27, 1929.—A number of the propositions submitted to members of the International Brotherhood of Papermakers at the referendum were defeated, according to the official report of the board of canvassers made late this week following a lengthy session in this city. Included in those voted down was the proposition to increase the salary of the organization secretary, Arthur Huggins, of Holyoke, from $3,000 to $4,000 a year. This was defeated by a vote of 784 to 607. The board of canvassers concluded their work late in the week. Later on the results of the referendum will be sent to every local in this country and Canada in order that the members may know the result in detail. Several of the propositions submitted in the referendum are of interest solely to members of the union and are in the nature of certain changes in the constitution of the organization. A proposition to include Memorial Day and Thanksgiving Day in the list of holidays to be observed in the paper mills was carried by a vote of 1,207 to 149. A proposition requiring all persons holding withdrawal cards to pay 35 cents per month dues to the death benefit was also carried. A proposition to assess all members receiving $6 a day or more at the rate of fifty cents a month and all members working for less at twenty-five cents, the fund to be used for organization purposes, was defeated by a vote of 872 to 575.

A proposition to the effect that delegates to the American Federation of Labor and also to the Labor Congress of Canada must be citizens of their respective country was carried by a vote of 1,336 to 149. The proposal that the canvassing board assemble on the seventh day after re-election rather than on the fifth was carried by a vote of 1,356 to 86. A proposition to the effect that all ballots cast by locals must be mailed out by the respective locals within 48 hours after election instead of 24 was carried by a vote of 1,391 to 89.

William R. Smith, president of the International body, will leave for Glens Falls late during the week for a conference with officials of Finch, Pruyn & Co. in connection with the signing of wage and working agreements which will prevail for one year. J. P. Burke, international president of the Pulp Workers' Union, will represent his organization at the conference. The session will be held in the offices of the company and will probably not consume over two hours in view of the fact there is not the slightest ripple of discord between the company and the unions. Neither is asking any change from the conditions that prevailed last year and this in itself will mean that the signing of the new agreements in all probability will be little more than a formality. The agreements will be retroactive to May 1. President Smith returned to this city early in the week after an absence of nearly three weeks which brought him through the Middle West and far up in Northern Canada in the interests of the organization. Vice-President Frank P. Barry is now at Howland, Maine, for a conference with paper manufacturers in connection with the new wage and working agreements.

Rosin Inspectors

The names and addresses of Government inspectors who will grade rosin under the Naval Stores Act are given below. Producers, dealers, or users of rosin may call upon any one of these to grade any lot of rosin in which they are interested.

V. E. Grotlisch, Food, Drug and Insecticide Administration, U. S. Department of Agriculture, Washington, D. C.

C. E. Smith, Food, Drug and Insecticide Administration, 201 Varick street, New York, N. Y.

S. W. Ahlmann, Food, Drug and Insecticide Administration, 411 Government Building, Cincinnati, Ohio.

R. E. Helveston, 2000 22nd avenue, Gulfport, Miss.

S. W. Pickens, 161 Houston street, Mobile, Ala.

G. A. Berry, Box 674, DeRidder, La.

F. W. Thomas, Box 215, DeRidder, La.

H. M. King, Box 330, Savannah, Ga.

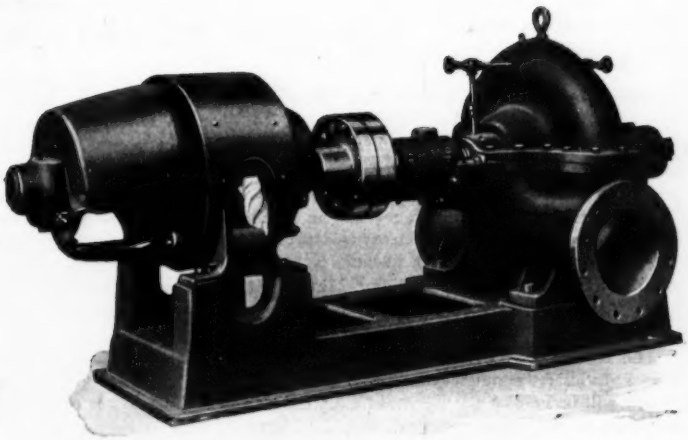
Coming Events Cast Their Shadows Before

The A. O. Smith Corporation, manufacturers of steel products, of Milwaukee, Wis., have just issued a bulletin entitled "Coming Events Cast Their Shadows Before", in which Smith-Welded Pressure Vessels for operation at Higher Pressures and Higher Temperatures are described and illustrated.

This instructive booklet is of vital interest to the process industries and copies may be obtained by applying to the A. O. Smith Corporation, Milwaukee, Wis.

VALLEY Centrifugal Pumps

Backed by 30 years Experience in the Paper Industry



Built to meet individual mill requirements, Valley Centrifugal Pumps are in use throughout the country —on water, stock, alkali and acid pipe lines.

Valley Centrifugal Pumps are built with ball bearings and sleeve bearings—each one designed for its individual need. Our 30 years experience is your guarantee of efficiency—that quality materials and high grade workmanship have gone into the unit to give maximum life and low operation cost.

Send for this Booklet

Complete in sizes, 2″ to 15″ inclusive for direct connection to alternating current motor or belt drive, Valley Centrifugal Pumps now have many improvements that add to their sturdiness and better adapt them to conditions peculiar to paper and pulp mills.

Perhaps you have some pumping problems. Our engineers will gladly cooperate with you in finding a solution. Write us about your difficulties. Our help is part of the service to paper and pulp mills. Booklet with specifications and general information on Valley Centrifugal Pumps free for the asking. Write for it now.

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue

Western Manufacturing & Sales Division: Smith & Valley Iron Works Co. Portland, Oregon

New York Trade Jottings

E. O. Reed and George Carter, of the Government Printing Office, arrived in New York from Europe last week.

* * *

J. Martin Sundell, one of the TAPPI fellows of the American-Scandinavian Foundation, sailed to Sweden from New York yesterday, Wednesday.

* * *

Karl Luger has recently left the employ of the Aluminum Company of America, where he was engaged as sales engineer, and is now located at 2 Patchen Place, New York.

* * *

The Johns-Manville Corporation, New York, announces the removal of the Milwaukee Sales Office of its Western Division to the Railway Exchange Building, 97 East Wisconsin avenue, Milwaukee.

* * *

Mrs. Herbert H. Miller, better known in the paper and board industry as Miss Alice B. Massa, treasurer of the A. B. Massa Paper Corporation, 358 Fifth avenue, New York City, was operated on for appendicitis on Friday, May 17, at the Flower Hospital, 64th street and Avenue A. Miss Massa is doing very nicely.

* * *

The New York Division of the Salesmen's Association of the Paper Industry announces the first golf outing of the season, which will be held at the Leewood Golf Club's Links, Eastchester, adjacent to the village of Tuckahoe, on Tuesday, June 11. The railroad station is called Crestwood. An enjoyable time is anticipated by all.

* * *

The Oneida Paper Products, Inc., of Brooklyn, N. Y., noted for their efficient handling of orders, have just taken additional space in the Bush Terminal Building representing an increase of fifty per cent in their manufacturing quarters. This provides room for carrying many more carloads of raw material and finished stock, which, with the additional equipment that is now being installed, will enable Oneida to render remarkably expeditious service in the manufacturing and printing of Glassine Bags, Waxed Paper Bags, Confectionery Bags and Coffee Bags.

* * *

Thomas T. Webster, general traffic manager of the Mead Pulp and Paper Company, was the principal speaker at the regular weekly meeting and luncheon of the New York Division of the Salesmen's Association of the Paper Industry last Monday at the Canadian Club, New York. Mr. Webster's topic was "Freight Rates on Paper," with particular reference to the hearings on news print which the Interstate Commerce Commission are holding. There was an excellent attendance and Mr. Webster's interesting and instructive speech was greatly appreciated.

Bag Factory at Fulton Reported Sold

[FROM OUR REGULAR CORRESPONDENT]

FULTON, N. Y., May 29, 1929.—It is reported on good authority that the bag factory of the Victoria Paper Mills has been sold although officials of the firm would not divulge the name of the new owners. It was stated that an announcement would be made within a few days. This department of the factory manufactures paper bags which are widely used throughout this country. The Victoria Mills is about the oldest established firm in this section and has always operated steadily besides being considered one of the most prosperous industries in this city. A large number of paper bags are manufactured yearly at the plant and they have proven one of the largest selling products of the company. In addition to the manufacture of bags the company also markets tissue paper. It is believed that the bag factory will operate as in the past under the new concern. W. L. Forsyth is president of the Victoria Paper Company.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 27, 1929.—A campaign for 100 per cent membership was the principal topic of discussion at a special luncheon meeting of the New England Paper Merchants' Association held at the Chamber of Commerce, Thursday, May 23. President Arthur E. Ham presided. So many Connecticut paper merchants not members of the association who attended the meeting at New Haven May 7 displayed such a great interest that the special meeting was called. Furthermore, so much interest is being shown in association work in the country as a whole that 100 per cent membership appears more promising than ever before.

On May 1 a law went into effect in the Commonwealth of Massachusetts forbidding the use of common towels or common drinking cups in any workshop, factory, manufacturing, mechanical or mercantile establishment. Carter Rice & Co. Corporation enterprisingly issued an announcement printed on a sample of No. 819 Victor Towel, a product of the A. P. W. Paper Co. The announcement states that the company has large stocks of paper towels, drinking cups, toilets and fixtures maintained at their warehouse at all times. In line with the merchandising of these products the company has made a series of designs with the view of improving the wrappings of the paper towels and toilets.

Most of the time during a sales meeting of the Carter Rice & Co. Corporation, Saturday, May 25, was devoted to the discussion of wrapping papers. H. S. Brown, manager of the wrapping paper department, gave a brief explanation and a complete price list of wrapping papers was delivered to the salesmen.

The plant of the Deerfield Flassine Company, Inc., manufacturers of "Quality Glassine Papers" at Monroe Bridge, Mass., is running six days a week. The company is receiving a satisfactory volume of orders. The sales office, at 176 Federal street, is in charge of Norman E. Scott.

Zeloid Products Discussed at Holyoke

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 27, 1929.—The principals in the Zeloid Products Corporation, Dr. Charles Hetzel, president, and Henry H. Peck, secretary, were introduced to a group of local business men at a meeting under the auspices of the Industrial Promotion Committee of the Holyoke Chamber of Commerce yesterday. A thorough discussion of the project, which all agree promised much for Holyoke, followed the luncheon. The informal meeting was called to order by Secretary Conrad Hemond who presented Mr. A. J. Osborne as presiding officer. Brief addresses were delivered by Dr. Hetzel, Mr. Peck and William J. Norton, treasurer of the corporation.

The Zeloid Products Corporation has opened a local office and the work of remodeling the old No. 1 and No. 3 Riverside Division Mills of the American Writing Paper Company which have been acquired by the corporation will be pushed along as rapidly as possible. A large number of articles showing the uses of zeloid, which is a transparent paper, purchased in the brief visit to one of the Holyoke stores were on display. The possibilities of the Zeloid Products Corporation as a possible investment were discussed with enthusiastic approval. The prospectus of the new company will be ready for distribution shortly.

May Build Corn Stalk Mill at Muncie

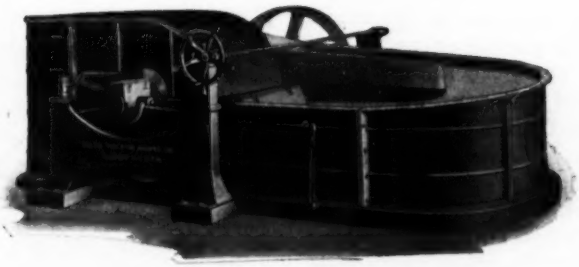
[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 27, 1929.—Members of the agricultural and industrial committees of the Muncie (Ind.) Chamber of Commerce are greatly interested in the prospects of locating a corn stalk paper and pulp mill in Muncie. Experiments of the Corn Stalks Products Company of Danville, Ill., have been watched carefully by the committee having in mind possibility of locating such a plant in Muncie.

The Corn Stalks Products Company has manifested considerable interest in Muncie territory. Through the county agent there, a vast amount of data as to the available supply of corn stalks in that territory annually has been submitted to the company.

WISDOM

THE DICTIONARY DEFINES THE WORD WISDOM AS "SOUND JUDGMENT"



It is *not* always sound judgment to purchase the cheapest priced machinery. "Your paper is made in your Beaters," and you cannot afford to rely on poor Beaters to make good paper.

Wise paper-makers use good Beaters. The Dilts New Type are good Beaters and represents wisdom and sound judgment in beating engine development.

"There is scarcely anything in this world that some man cannot make a little worse and sell a little cheaper and the buyers who consider price only, are this man's lawful prey."

Attributed to Ruskin.

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE - 15 PARK ROW - NEW YORK CITY

"Your Paper Is Made In Your Beaters"

PAPER TRADE JOURNAL
ESTABLISHED 1872
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Reginald Trautscheld, M. E.
Power Engineering Consultant
Member A. B. C. Audit Bureau of Circulations
Vol. LXXXVIII New York, May 30, 1929 No. 22

A HAND MADE PAPER ENTERPRISE

The Dard Hunter paper mill, America's only mill devoted exclusively to the manufacture of hand made paper, will open for business this summer at Lime Rock, Conn., a picturesque village located in the northwest corner of that state and in the foothills of the famous Berkshire hills.

This unique industry has been promoted by Mr. Dard Hunter, and Mr. Harry A. Beach. The enterprise is literally the fulfillment of a dream and a hope long entertained by both principals in the undertaking.

For many years Mr. Beach had followed the novel hobby of collecting specimens of high grade papers from all countries. Many of these samples came from mills in Europe, where the hand made methods still prevail to an extent. He always had faith in the success of a strictly hand made mill in America.

Mr. Beach knew of Dard Hunter and his position in the world of papermaking and visited Chillicothe, Ohio, the latter's home, where the plan was discussed many times, Mr. Hunter was receptive and fell in with the plan. He always insisted on a location in the East, while Mr. Beach hoped to have the mill in the West. Finally Mr. Beach acceded to his point of view and many journeys were made to points East of the Hudson river. Finally, after three years the concern purchased the site at Lime Rock. It had ample water power and a supply of the purest water from springs in the upper Berkshire hills. The property purchased included a very remarkable old iron foundry, located there during the ante-revolutionary days and in operation when the war was on. It was that mill that made the great iron chain the colonists stretched across the Hudson river at West Point to keep ships of the British fleet getting up to Albany.

Naturally a considerable community grew up around the iron mill and flourished until the supply of ore ran out early in the last century. Then a gradual decline set in, until finally it became veritably a deserted village. An enterprising real estate dealer took over the whole village site to revive it as an art colony and residential site. Promoters of the hand made paper mill were approached with a favorable offer and the property was found to meet their demands in every way. The main buildings of the old iron foundry were found to be easily convertible. This was done, the past eight or nine months having been devoted to that work exclusively. Many of the outbuildings have been dismantled, others turned into comfortable cottages. The water power operates perfectly and the whole setting for the new enterprise is picturesque and attractive.

The installation of mill equipment is now going forward. A plater, press, drying equipment and stuff chests are being placed. Mr. Hunter had in his possession some fine copper lined beaters, screens and other equipment needed in a hand made paper mill. Much of this equipment was in the Beach garage, Michigan avenue, where samples of hand made paper were made from time to time. When the family moved East all this equipment went forward with them.

Mr. Beach in the interim has been in conference with handlers of fine papers in Chicago, New York, Detroit and other cities and everywhere his idea of producing the finest grades of stationery has met with instant and cordial approval. Certain jobbing concerns have volunteered to take the mill's entire output, which due to the extreme care needed in manufacture, will be but a few reams of paper each day.

Dard Hunter is a remarkable man. He is the only man in the world credited with making a book complete. He is the author of several very fine works on paper making. He not only gathered all his subject material personally, prepared the copy, but also he made the paper for his books, cut the type out by hand, set his own type, did his own illustrating, his own press work and his own binding. Naturally these volumes are highly prized and are sold only to bibliophiles of wealth. Among his books are "The Etching of Figures," 1915; "The Etching of Contemporary Life," 1917; both for the Chicago Society of Etchers; "The Art of Book Making," 1915; "Primitive Papermaking," 1927; "Old Papers and Water Marks." He also compiled: "Hand Made Paper and Its Water Marks," "A History of Marbled Papers," "The Literature of Paper Making" and "Hand Made Paper Making." He contributed numerous articles to magazines on paper making. From 1903 to 1910 he was art director for the Roycrofters, at East Aurora, N. Y.

In addition to paper making, he works in wood, copper, brass, silver and clay with equal ability. His water marks are remarkable. In this connection he is the first man to produce a water mark in perfect colors. He can reproduce a flower, family crest or any other object desired in such manner that reproduced in a perfectly white sheet of paper, the colored water mark shows clearly when the paper is held to the light.

He is a graduate of Ohio State University, also of various Universities and institutes in Vienna and London and Paris. His studies of the art of paper making have taken him all over the world. He is a man of taste and means. His father was one of the founders of the famous Rookwood pottery in Cincinnati. It is seen he inherits his taste for the beautiful.

Mr. Beach in speaking of his connections with Dard Hunter, remarked: "Hunter, because of his books going to lovers of the beautiful and artistic has had very insistent calls for special hand-made paper stationery and paper for limited editions of the classics. But being alone he couldn't produce this paper in a commercial way. He could only make a sufficient supply for his own use. He has realized the market for fine papers and has often remarked to me, 'a man of taste and means is able to have practically everything he uses made to order, why not his personal stationery?'"

Canadian Paper Exports Increase

Pulp and paper exports in April were valued at $13,269,297, according to the report issued by the Canadian Pulp and Paper Association. This was an increase of $868,828 over the total for April 1928.

Wood-pulp exports were valued at $3,155,350 and exports of paper at $10,113,947, as compared with $3,013,864 and $9,386,605 respectively in April 1928.

For the various grades of pulp and paper details are as follows:

	April, 1929		April, 1928	
	Tons	$	Tons	$
PULP:				
Mechanical	11,763	342,652	14,076	407,891
Sulphite Bleached	18,146	1,424,190	16,060	1,250,038
Sulphite Unbleached	14,174	708,957	14,939	751,641
Sulphate	10,531	627,837	9,459	560,786
Screenings	2,924	51,714	2,075	43,508
	57,538	3,155,350	56,609	3,013,864
PAPER:				
News Print	162,381	9,747,536	140,011	9,068,396
Wrapping	714	79,392	669	70,699
Book (cwts.)	4,276	33,799	2,336	20,595
Writing (cwts.)	1,763	14,735	108	773
All Other	.....	238,485	.....	226,142
		10,113,947		9,386,605

For the first four months of the year the total value of the exports of pulp and paper amounted to $63,062,391 which was an increase of $1,387,798 over the total for the corresponding months of 1928.

Wood-pulp exports for the four months were valued at $14,013,625 and exports of paper at $49,048,766, as compared with $14,591,245 and $47,083,348 respectively in the four months 1928.

Quantities and values for the four months of 1929 and 1928 were as follows:

	Four Months, 1929		Four Months, 1928	
	Tons	$	Tons	$
PULP:				
Mechanical	51,551	1,403,197	54,385	1,473,313
Sulphite Bleached	87,486	6,707,548	83,712	6,311,996
Sulphite Unbleached	59,351	2,966,742	69,370	3,525,024
Sulphate	46,173	2,767,300	52,688	3,114,191
Screenings	8,751	168,838	8,520	166,721
	253,312	14,013,625	268,675	14,591,245
PAPER:				
News Print	776,064	46,949,419	697,051	45,030,742
Wrapping	5,206	568,324	5,666	620,902
Book (cwts.)	27,667	226,386	19,335	156,517
Writing (cwts.)	3,005	25,287	1,633	14,728
All Other	.....	1,279,350	.....	1,260,459
		49,048,766		47,083,348

Pulpwood exports in the first four months of 1929 amounted to 399,972 cords, valued at $3,575,602 which was a considerable decline from the 537,459 cords, valued at $4,770,423, exported in the first four months of 1928.

Keyes Container To Build in Massachusetts

The constantly increasing demand for manufactured products which are today being converted from paper or pulp is further demonstrated in the recently organized Keyes Container Corporation, a subsidiary of the Keyes Fibre Company, of Waterville, Me. The Keyes Container Corporation will shortly erect a new plant in Massachusetts, location not yet definitely decided upon, wherein will be installed a battery of 48 manufacturing units for conversion of pulp into various types of liquid containers, radio horns, slippers, spoons, etc.

The process which will be used in the manufacture of the various products has been in successful operation in Germany, France, England and Holland. It makes the product seamless, of light weight, and is adaptable to making any container product in any imaginable shape or design.

The officers of the new corporation are—President, Walter S. Wyman; first vice-president, John M. Hart; second vice-president and general manager, John West; treasurer, Spaulding Bisbee.

The directors include these officers and the following: Maurice F. La Croix, of Paine, Weber & Co., of Boston; George L. Calkins, and Dr. Eugene Katz, of Baumgartner, Berlin.

Mr. Wyman, the president, is also president of the Central Main Power Company, and Mr. Bisbee is a capitalist of Portland, Me. The first vice-president, John M. Hart, president of John M. Hart Company, has long been identified with the paper and pulp industries.

The equipment to be employed in this new plant has already been received from Germany and is awaiting the definite location of the plant and its construction when it will be promptly installed and plant put into operation. It is stated that one large concern in Germany operating under license from the German patentees of the equipment to be used is manufacturing over 30,000,000 containers annually of different sizes and shapes.

The parent company of the new corporation, the Keyes Fibre Company, Inc., has been for many years the largest and most successful producers of molded pulp products in the United States.

The general sales offices of the Keyes Container Corporation will be located at 35 Congress street, Boston, Mass.

Rayon Changing Output of Norwegian Mills

The increasing demand of the rayon industry for bleached pulp is bringing about marked changes in the Norwegian pulp mills, Commercial Attache Marquard H. Lund, Oslo, reports to the Department of Commerce at Washington, D. C. These mills are rebuilding their equipment to enable them to turn out bleached pulp for rayon manufacture instead of unbleached pulp for paper mill consumption which constitutes the present output.

It is estimated that in 1928 the rayon industry consumed a total of approximately 185,000 metric tons of bleached sulphite, an increase of 40,000 tons over the preceding year. It is not unlikely that 1929 will see a similar increase over 1928. If the demand from this source should continue at the same rate, the sulphite pulp producers will be in a much stronger position than they have been, unless new production offsets this advantage. Based on reports made public since the first of the year, no less than 75,000 tons of pulp should be diverted from unbleached to bleached pulp production during 1929.

Last year it was estimated that the Scandinavian countries and Finland furnished from 40 to 45 per cent of the total requirement of bleached sulphite pulp for the rayon industry. There can be no doubt, according to Commercial Attache Lund states, that they intend to maintain their position in this market.

Modern Paper Making

Richard Henderson Clapperton and William Henderson, the authors of "Modern Paper Making," have had a long and practical experience of paper making, both technical and theoretical.

In this ambitious volume, which will doubtless take its place as one of the standard works on paper making, is described in detail all the processes, from the collection and sorting of the raw materials to the storing of the finished products.

Descriptions of the best modern practice are presented in an instructive and comprehensive manner by the authors, who also give an account of the remarkable inventions and developments in machinery and plant which have come into use within the past few years.

Many tables and formulae assist in making the book helpful to every branch of the paper industry, while the volume also contains no less than 160 illustrations, which add materially to its value.

This monumental work should find a prominent place in every paper mill library and will undoubtedly prove a great stimulus and help to those who will become the foremen, managers and mill superintendents of the future.

"Modern Paper Making" is published by Ernest Benn, Ltd., of Bouverie House, 154 Fleet Street, London, E. C., at 31/6 net.

W. P. Hawley Sr. Sails for Europe

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., May 24, 1929.—W. P. Hawley, Sr., president of the Hawley Pulp and Paper Company, Oregon City, Oregon, and of the St. Helens Pulp and Paper Company, St. Helens, sailed May 8 for a European tour, accompanied by Mrs. Hawley and their granddaughter Miss Adele.

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Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Tentative Method for Analysis of Salt Cake*

By F. J. Curtis[1]

Insoluble Material

Dissolve 50 grams 60 mesh sample in about 250 cc. hot water but without boiling. Filter through ashless filter paper, ignite and weigh.

Make up filtrate to 500 cc.

$$\frac{\text{Weight insoluble} \times 100}{50} = \text{Per cent insoluble (Average weight 0.2 grams)}$$

Free Acid

Take 50 cc. of the above solution, dilute a 200 cc., titrate with N/10 caustic soda using methyl red as indicator.

$$\frac{\text{Cc. NaOH} \times 0.0049 \times 100}{5} = \text{Per cent } H_2SO_4 \text{ (Average titration 25 cc.)}$$

Sodium Chloride

To the neutral solution from the acid determination add ten drops per cent K_2CrO_4 and titrate with N/10 $AgNO_3$ solution until a red coloration is obtained.

$$\frac{\text{Cc. } AgNO_3 \times 0.0058 \times 100}{5} = \text{Per Cent NaCl (Average titration 17 cc.)}$$

Iron, Alumina, R_2O_3

To a fresh 100 cc. portion add few drops HNO_3, heat to a boiling point and add excess NH_4OH until faint smell of NH_3 is obtained. Filter and wash precipitate. Ignite and weigh as R_2O_3.

$$\frac{\text{Weight } R_2O_3 \times 100}{10} = \text{Per cent } R_2O_3$$

Per cent $R_2O_3 \times 2.5 = Fe_2(SO_4)_3$

Note: If desired to determine iron separately make a separate precipitation, dissolve precipitate from filter paper with dilute HCL, determine iron by the stannous chloride method, using preventive solution and titrating with N/10 $KMNO_4$.

Calcium

Concentrate the filtrate from the R_2O_3 determination to about 250 cc., add NH_4Cl, boil and add 10 cc. saturated ammonium oxalate. Filter, wash and ignite to CaO.

$$\frac{\text{Weight CaO} \times 100}{10} = \text{CaO}$$

Per cent CaO x 2.42 = Per cent $CaSO_4$

Magnesium

To the filtrate from the CaO determination add excess 10 per cent ammonium phosphate or miscromosmic salt solution and ammonia. Precipitate in the warmth for at least three hours. Filter and wash with dilute (1:10) ammonia. Dry and weigh as $Mg_2P_2O_7$.

$$\frac{\text{Weight } Mg_2P_2O_7 \times 0.36 \times 100}{5} = \text{Per cent MgO}$$

Per cent MgO x 2.98 = Mg SO_4

Total Sulphate

Acidify 10 cc. of the original solution diluted to 400 cc. with HCl, heat to boiling, add excess $BaCl_2$ solution. Allow to settle, filter, ignite and weigh as $BaSO_4$.

Weight $BaSO_4$ x 0.608 x 100 = Per cent total SO_3 as Na_2SO_4.

Moisture

Dry 10 grams at 105 degrees C. for 4 hours.

$$\frac{\text{Loss in weight} \times 100}{10} = \text{Per cent moisture.}$$

Calculation of Na_2SO_4

Per cent H_2SO_4	x 1.44 =	Na_2SO_4	Acid
Per cent $Fe_2(SO_4)_3$	x 1.064 =	Na_2SO_4	R_2O_3
Per cent $CaSO_4$	x 1.044 =	Na_2SO_4	CaO
Per cent $MgSO_4$	x 1.18 =	Na_2SO_4	MgO

Na_2SO_4 Impurities

Total SO_3 as Na_2SO_4 — Na_2SO_4 equivalent to impurities = Per cent Na_2SO_4

Difference Method

Moisture, insoluble, sodium chloride, $Fe_2(SO_4)_3$, $CaSO_4$, $MgSO_4$, H_2SO_4 added together and subtracted from 100 to give Na_2SO_4.

SALT CAKE STANDARD

Manufacturer	A	B	C	D	Average	Suggested Standard
H_2SO_4	2.27	1.08	2.82	2.79	2.28	2.3
NaCl	1.03	.70	1.10	1.18	1.00	1.0
Insoluble	.48	.29	.39	.22	.34	
$Fe_2(SO_4)_3$	.40	.25	.28	.40	.33	
$Al_2(SO_4)_3$	.13	.43	.20	.23	.25	1.6
$CaSO_4$	.33	.46	.68	.53	.50	
$MgSO_4$	.24	Tr.	.30	.30	.21	
Na_2SO_4	95.12	96.79	94.43	94.34	95.22	95.1
					100.13	

* Presented at Annual Meeting of TAPPI, New York, Feb. 21, 1929.

[1] Associate Member TAPPI; Technical Advisor, Merrimac Chemical Co., Boston, Mass.

Note: This method of analysis is submitted to the Technical Association for discussion. Please send comments and criticisms to the Secretary of TAPPI, 18 East 41st street, New York.

A New Freeness and Consistency Tester*

By D. S. Davis[1]

It is the purpose of this paper to call attention, in a brief manner, to a new type of freeness tester and to compare this tester with several of the older types.

The principle of the new freeness tester, Fig. 2, is about the same as that of the old sedimentation instrument but there the similarity ends. The top part, A, of the tester consists of a graduated glass cylinder protected by metal tie-rods connecting the metal ends and drawing the latter tightly against the rubber gaskets at either end of the cylinder. The cylinder fits into the bottom part of the tester by means of a bayonet lock joint and upon this lower part rests the flat filtering screen. This cup is revolved through a small arc by means of a lever handle, B, having a roller wheel which rides over the stem of the stop-watch, C. This revolving cup also forms the valve which starts and stops the flow of liquid by having holes in the bottom which register with those in the fixed portion of the instrument at one position of the lever handle so that rotating the cup by means of the handle not only actuates the valve which starts and stops the flow but at the same time mechanically starts and stops the stop-watch.

During a freeness test the arrow on the lower valve, D, should point downward. Turning the handle through 90 degrees connects the tester with suction from an aspirator, enabling the formation of a pad for consistency determinations or the use of the tester in filtering whitewater (using also a 9 cm. filter paper which just fits) or in sheet making.

A freeness test is carried out as follows: the cup is filled to the 1000 cc. mark with stock at 0.2 to 0.4 per cent consistency, the contents stirred with a thermometer and the temperature noted. The valve is opened, starting the watch and when the level has fallen to the zero mark the valve is closed and the watch stopped. The lower valve is turned connecting the tester with suction, the upper valve is reopened and the majority of the water is drawn out of the mat. The cylinder is raised, the mat is removed from the perforated plate, pressed between blotters, dried at 105 degrees C. and weighed. By the use of a chart the freeness value in seconds is converted to that at the standard temperature and sample weight.

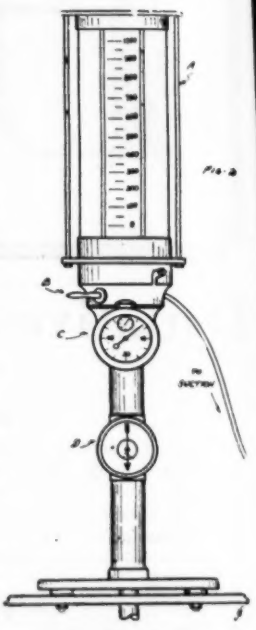
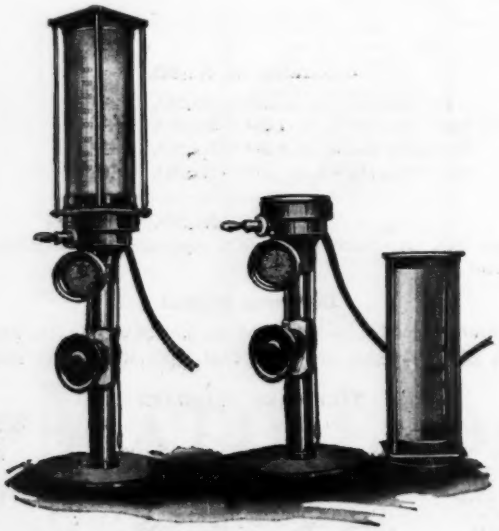


FIG. 2

Consistency and Temperature Characteristics

Presentation of complete consistency and temperature characteristics for this tester will have to be deferred to a later paper but we have sufficient data at present to show that the sample weight and temperature of the freeness sample both bear much simpler relations to the freeness value than is the case with any tester which we have so far examined. For instance, freeness—weight plots for any sulfite stock likely to be encountered in the mill are straight lines, and furthermore these lines are convergent. The determinations of the co-ordinates of the convergence point is not entirely empirical; the co-ordinates are very nearly those required by the freeness theory, as will be shown later. The situation with regard to temperature is similar. Again, all freeness—temperature plots for sulfite stocks are straight lines and meet at a common point. This, of course, is conducive to both rapidity and accuracy in completing the freeness test. It is quite enough to make the test at almost any convenient consistency and temperature as long as these are known. The combined conversion chart for both sample weight and temperature effects is no more than a piece of blank blotting paper bearing only freeness, weight and temperature scales (Fig. 1) and the two convergence points pierced by pins to which are tied the ends of a long thread. Merely plot the freeness—weight

* Presented at Annual Meeting of TAPPI, New York, Feb. 21, 1929.
[1] Member TAPPI; Chemical Engineer, Bureau of Tests, International Paper Co., Glens Falls, N. Y.



FREENESS TESTER PARTS

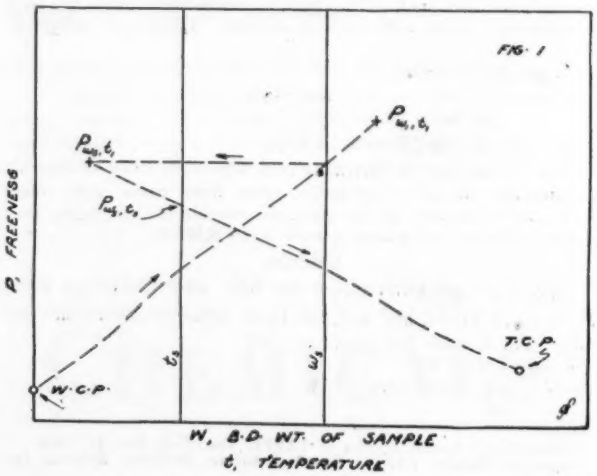


FIG. 1

point (P_{w_2,t_1}) and connect this with the weight convergence point (W. C. P.) and mark its intersection with the standard weight line, w_s. From this intersection draw a line parallel to the weight scale until it intersects the line representing the temperature of the test (P_{w_s,t_2}). Connect this latter intersection with the temperature convergence point (T. C. P.) and read the corrected freeness, P_{w_s,t_s} on the standard temperature line. Of course, the process may be reversed, if desired. Similar convergence points with slightly different co-ordinates exist for other stocks as well.

TABLE 1

Stock		Freeness, seconds at 3 grams and 25 deg. C.
Sulfite; unbeaten, bleached and unbleached		10—16
Sulfite Bond,	To beaters	12
	To 1st jordan	35
	To 2nd jordan	66
	From 2nd jordan	85
	In slices	240*
Kraft,	To beaters	9—12
	To jordans	15—35
	From jordans after light jordauing	35—90
	In slices after severe jordaning	250—300*
Bookstock		220—270*
Bookstock—soda mixture, in slices		460*

Table I gives a partial list of typical values to be expected when using the new Williams freeness tester.

* Although freeness values may run up to ten minutes or more no greater time to make the tests is required than in the case of free stocks.

It may be well at this point to call attention to several criteria of a good freeness tester and to outline how well, in our opinion, a few of the testers now in use meet these requirements. In Table II a rating of 'A' is to be regarded as most satisfactory, 'B' next, and so on.

TABLE 2

Criteria	Type of Tester: 50-50	Williams 1925 B	Williams 1927 B	Green or Can. Std.	Williams Precision
1. Sturdiness of construction	A	A	A	A	A
2. Portability	D	B	B	F	A
3. East of identical reproduction	B	B	B	B	A
4. Integral provision for consistency det'n.	—	—	—	—	A
5. Simplicity of operation	C	B	B	D	A
6. Accuracy	?	B	B	B	A
7. Rapidity	C	B	B	C	A
8. Wide range between slow and free stocks	D	B	B	B	A
9. Applicability to all stocks	?	A	A	A	A
10. Interchangeable perforated plates	—	—	—	—	A
11. Simplicity of freeness—consistency relationship	?	C	C	C	A
12. Simplicity of freeness—temperature relationship	?	D	D	D	A
13. Freeness—time plot for beater performance must be a straight line ($dF/dO = K$, initially)	D	A	A	B	A
Additional features:					
Sheet making	—	—	—	—	A
Whitewater testing	—	—	—	—	A

The Use Requirements of Chip Board*

By George R. Wyman [1] and R. A. Wilkins [1]

Chipboard as discussed in the following article will be considered in two classes, first, solid chipboard which is a board made entirely from mixed papers with no liner and, second, combination or filled chipboard, which is a board having a mixed paper or chip center and lined on one or both sides with a higher grade of stock.

Solid Chipboard as we make it is made in the following calipers .009 and .016 for corrugated cases and .025 and .033 for solid fiber cases. Practically all companies use the same calipers as we do for corrugated board, but for the solid fiber cases the caliper varies according to the liner calipers used and the number of plies in the combinations used to make the solid fiber cases. However the properties required by the various calipers made are identical in most respects.

Let us first consider the use requirements of .009 chip. This is used on non-test corrugated boxes for partitions, fillers, pads, inside liners, etc. Its requirements are that it be a fair bender, be clean as possible, have a good finish and it is our policy to size the sheet, although this may seem unnecessary in the majority of cases. As it is a light sheet for a cylinder machine such as heavy board is made on, we make the .009 chip on a fourdrinier using a news furnish with a small amount of sulphate to strengthen the sheet. This furnish gives a very good appearance to the board and as it is made on a fourdrinier we can run a bulkier sheet than would be possible on a cylinder machine. We find that 7 per cent moisture is the best moisture content for the finished sheet considering everything.

.016 chipboard is made on a cylinder machine. This is also used on non-test cases usually as an inner liner, partitions, pads, etc. Its requirements are good bending qualities, good finish, and good appearance. The furnish used being usually 100 per cent mixed papers, it is necessary to run the moisture content of the board at 7-8 per cent to prevent cracking which would occur if the board were drier or curling which would occur if the board were higher in moisture. This moisture content also helps to give the desired finish.

Chipboards used in solid fiber cases run higher in caliper than those used for corrugated. The use requirements are that the board have sufficient moisture content to be a good bender, high enough so as not to be brittle and low enough so as not to cause curling. The finish necessary is only that required to furnish the necessary surface for the silicate of soda used in combining to adhere to. The more a board can be bulked, which is usually directly dependent on the finish if all mixed papers are used the greater will be the saving in material cost if the board is sold on a square foot basis. Appearance is not so important as the board is usually covered up.

100 percent mixed papers are generally used but in some cases where more production is desired, strawboard, screenings, and newsprint wrappers are used to free up the sheet resulting in easier drying and therefore more production. The danger in the use of these materials is that the sheet may split easily. Many mills try to get all the production possible on chipboard and trust to the liners giving them the necessary Mullen test requirements. This usually works out satisfactorily but a high test chip is mighty convenient to have on hand at times when the liner test is lower than usual.

Filled chipboard which we make is all for our own use in making shoe cartons, tack boxes, boxes for rubber goods, etc. The use requirements for this board are that it must have a good finish, be a good bender, have a good appearance and be well sized in most cases.

In order that we may obtain the above requirements we use a liner furnish of folded news and sulphate pulp for the darker colors and folded or blank news with sulphite for the brighter shades. Moisture must be kept at 7-9 percent in order that the board may run satisfactorily through our box machine.

There is another class of lined chipboard which we do not make but which is made in large quantities in other mills. This is non-folding chip which is usually a news lined board and its principal requirements are stiffness and good appearance.

In this paper we have discussed our methods of manufacture and what we consider to be the use requirements. We hope that we can now have a discussion of what the other mills consider the use requirements of chipboard as we realize that where we use all of our board ourselves, there are probably other use requirements which we do not have to contend with.

* Presented at Annual Meeting of TAPPI, New York, Feb. 19, 1929.
[1] Bird and Son, South Walpole, Mass.

Report on Microscopical Analysis*

By C. E. Libby[1]

The Sub-Committee on Microscopical Analysis desires to submit at this time a final compilation of the results of the cooperative laboratory work which has been carried on during the past two years with the object of determining the accuracy of the dot-count method of fiber analysis.

Six samples of paper of known composition were carefully prepared and forwarded to fifteen different laboratories that signified their intention of cooperating in this work. Eight of these laboratories completed the analyses and their results are included in the summary. Three laboratories submitted two complete sets of results obtained by independent investigators so that the summary includes eleven complete analyses.

The samples sent out for analysis were prepared in such a way that they included most of the common paper making fibers. In certain cases two papers of identical composition were prepared but having the fibers in one treated differently than in the other. This was the case with Samples No. 1 and No. 2. Sample No. 1 consisted of a mixed sulphite and ground wood furnish which had been brushed out for a short time in a laboratory beater. Sample No. 2 contained the same proportion of fibers but they had been subjected to two hours of severe beating treatment. Sample No. 6 contained 20 per cent by weight of mechanical wood fiber, but 10 per cent of this was added in the form of wood flour which is an extremely fine product and apt to give trouble in any fiber analysis. The anticipated difficulties were realized in this particular sample, for the mean of all reported analyses by the dot-count method indicate an error of 35 per cent in the case of the mechanical wood pulp constituent. However, an error of 25 per cent in this constituent was reported by the standard methods of analysis which indicates that none of the microscopical methods at present available can be relied upon to give accurate results when dealing with very finely divided materials.

The mean deviation of all analyses by the dot-count method of analysis was 5.5 units. By the standard methods of analysis a deviation of 2.8 units was reported, a very definite advantage in favor of the present standard methods of analysis. The principal sources of error in the use of the dot-count method appears to be in the estimation of mechanical pulp fiber which is consistently under-estimated and in the evaluation of chemical soda fiber which is consistently over-estimated. In support of the accuracy of the dot-count method it may be mentioned that no compensating weight factors are at present being used in reporting results obtained by this method. On the other hand, many of the analysts in the investigation just completed indicated that they employed weight factors in the calculation of results by the standard methods of analysis. If the proper weight factors were available and tests had demonstrated their suitability for use with the dot-count method it is obvious that the calculated results would be much closer to the true composition and the discrepancy in results between the several methods might be wiped out altogether.

During the past eight years, each student in the paper making classes at the New York State College of Forestry has been required to complete a course in paper testing which includes among its various determinations the microscopical analysis of twelve unknown fiber suspensions as well as a similar analysis of five samples of paper, the composition of which is known by the instructor. A summary of the results obtained in this work is tabulated on the second of the accompanying charts. It is thought that this summary may be of interest to those interested in fiber analysis since it indicates what may be expected of students totally

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RESULTS OF COOPERATIVE LABORATORY WORK ON DOT METHOD OF FIBER ANALYSIS

Laboratory	No. 1 U.B. Sulphite 60% Groundwood 40%		No. 2 U.B. Sulphite 60% Groundwood 40%		No. 3 B. Rag 70% B. Sulphite 30%		No. 4 B. Rag 70% B. Soda 30%		No. 5 Kraft 85% Groundwood 15%		No. 6 Rag 60% U.B. Sulphite 20% Groundwood 10% Wood Flour 10%	
	Dot	Std.	Dot	Std.	Dot	Std.	Dot	Std.	Dot	Std.	Dot	Std.
A—No. 1.....	S 74 GW 26	S 73 GW 27	S 74 GW 26	S 72 GW 28	R 64 S 36	R 77 S 23	R 69 S 31	R 62 S 28	K 88 GW 12	K 30 GW 20	R 64 S 26 GW 10	R 68 S 21 GW 11
A—No. 2.....	S 77 GW 23	S 73 GW 27	S 74 GW 26	S 71 GW 29	R 71 S 29	R 75 S 25	R 70 S 30	R 73 S 27	K 81 GW 19	K 80 GW 20	R 64 S 26 GW 10	R 68 S 21 GW 11
B	S 77 GW 23	S 90 GW 10	S 67 GW 33	S 60 GW 40	R 65 S 35	R 50 S 50	R 60 S 40	R 70 S 30	K 90 GW 10	K 90 GW 10	R 59 S 33 GW 8	R 65 S 25 GW 10
C	S 54 GW 46		S 59 GW 41		R 61 S 39		R 56 S 44		K 85 GW 15		R 61 S 29 GW 10	
D	S 67 GW 30 R 3	S 71 GW 20 R 9	S 53 GW 45 R 2	S 69 GW 45 R 4	R 73 S 27	R 63 S 37	R 61 S 39	R 74 S 18 S 8	K 79 GW 19 R 2	K 80 GW 14 R 6	R 62 S 25 GW 12	R 68 S 21 GW 11
E	S 64 GW 36	S 61 GW 39	S 57 GW 43	S 57 GW 43	R 67 S 33	R 70 S 30	R 54 S 45	R 70 S 30	K 77 GW 23	K 81 GW 19	R 57 S 22 GW 21	R 59 S 25 GW 16
F—No. 1.....	S 70 GW 30	S 70 GW 30	S 70 GW 30	S 65 GW 35	R 65 S 35	R 55 S 45	R 60 S 40	R 65 S 35	K 90 GW 10	K 85 GW 15	R 55 S 30 GW 15	R 50 S 30 GW 20
F—No. 2.....	S 65 GW 35	S 50 GW 50	S 65 GW 35	S 45 GW 55	R 65 S 35	R 75 S 25	R 55 S 45	R 60 S 40	K 85 GW 15	K 75 GW 25	R 55 S 30 GW 15	R 50 S 20 GW 30
G	S 76 GW 24	S 75 GW 25	S 75 GW 25	S 65 GW 35	R 69 S 31	R 65 S 35	R 68 S 32	R 75 S 25	K 87 GW 13	K 90 GW 10	R 65 S 25 GW 10	R 60 S 30 GW 10
H—No. 1.....	S 62 GW 38	S 45 GW 55	S 73 GW 27	S 60 GW 40	R 71 S 29	R 75 S 25	R 63 S 37	R 75 S 25	K 85 GW 15	K 80 GW 20	R 64 S 24 GW 12	R 60 S 25 GW 15
H—No. 2.....	S 65 GW 35	S 42 GW 55	S 72 GW 28	S 60 GW 40	R 67 S 33	R 75 S 25	R 62 S 38	R 75 S 25	K 83 GW 17	K 80 GW 20	R 63 S 26 GW 11	R 60 S 25 GW 15
Mean	S 68 GW 37	S 65 GW 35	S 67 GW 33	S 62 GW 38	R 67 S 33	R 68 S 32	R 62 S 38	R 70 S 30	K 85 GW 15	K 82 GW 18	R 61 S 26 GW 13	R 61 S 24 GW 15
Mean Deviation..	S +8 GW −8	S +5 GW −5	S +7 GW −7	S +2 GW −2	R −3 S +3	R −2 S +2	R −8 S +8	R ±0 S ±0	K ±0 GW±0	K −3 GW+3	R +1 S +6 GW−7	R +1 S +4 GW−5
Max. Deviation..	±14	±30	±15	±15	± 9	±20	±16	±10	± 8	±10	±12	±10

RESULTS OF FIBER ANALYSIS BY STUDENTS AT THE NEW YORK STATE COLLEGE OF FORESTRY

Composition of Suspension	1923			1924			1923			1926			1927			1928		
	Method	No. Dets.	Mean Error	Method	No. Dets.	Mean Error	Method	No. Dets.	Mean Error	Method	No. Dets.	Mean Error	Method	No. Dets.	Mean Error	Method	No. Dets.	Mean Error
A. Rag—C. Wood	Est.	10	14.4	Sp-Ks	10	2.3	Sp-Ks	9	6.6	Sp-Ks	10	6.8	Sp-Ks	11	6.9	Dot	9	4.2
B. Rag—C. Wood	Est.	10	9.8	Sp-Ks	10	3.6	Sp-Ks	9	6.0	Sp-Ks	10	5.5	Sp-Ks	11	5.5	Dot	9	4.7
C. C. Wood—G. Wood	Est.	10	14.7	Sp-Ks	10	12.0	Sp-Ks	9	9.9	Sp-Ks	10	8.5	Sp-Ks	11	6.0	Dot	9	8.7
D. C. Wood—G. Wood	Est.	10	12.9	Sp-Ks	10	11.7	Sp-Ks	9	10.7	Sp-Ks	10	7.0	Sp-Ks	11	8.5	Dot	9	4.3
E. Sulphite—Sulphate	Est.	10	13.1	Sp-Ks	10	7.2	Sp-Ks	9	3.7	Sp-Ks	10	11.7	Sp-Ks	11	9.1	Dot	9	4.0
F. Sulphite—Sulphate	Est.	10	8.2	Sp-Ks	10	4.2	Sp-Ks	9	7.3	Sp-Ks	10	7.7	Sp-Ks	11	6.6	Dot	9	7.6
G. Sulphite—Soda	Est.	10	14.2	Sp-Ks	10	9.4	Sp-Ks	9	5.7	Sp-Ks	10	18.8	Sp-Ks	11	13.5	Dot	9	3.1
H. Sulphite—Soda	Est.	10	7.4	Sp-Ks	10	7.2	Sp-Ks	9	4.9	Sp-Ks	10	21.5	Sp-Ks	11	10.5	Dot	9	6.7
I. Bleached—Unbleached				Sp-Ks	10	11.7	Sp-Ks	9	9.6	Sp-Ks	10	9.3	Dot	11	4.5	Dot	9	4.9
J. Bleached—Unbleached				Sp-Ks	10	13.5	Sp-Ks	9	7.4	Sp-Ks	10	12.8	Dot	11	3.5	Dot	9	4.1
K. Mixtures							Sp-Ks	9	12.6	Sp-Ks	10	7.1	Dot	11	4.5	Dot	9	5.4
L. Mixtures							Sp-Ks	9	9.7	Sp-Ks	10	6.9	Dot	11	5.1	Dot	9	6.0
Mean Yearly Error			11.8			8.3			7.9			10.4			7.0			5.3

unfamiliar with quantitative microscopical analysis and it also furnishes valuable data on the results obtained with several methods of analysis, especially the dot-count method which has been employed for the past year and one-half.

At the inception of this course in paper testing in 1920, the estimation method of fiber analysis was used for three years. The results for the year 1923 are included on the chart. It was found that the degree of accuracy obtained with this method was not entirely satisfactory due perhaps to the failure of many students to prepare standard slides for comparison. In 1924 the Spence-Krause method of analysis was adopted and it was found that much greater accuracy was being obtained. The figure representing the mean yearly error does not justly represent the quality of the work done since it necessarily includes the results of two or three students in every class who are not adapted for this type of work and who consistently turn in results with a large error. It was found that with the Spence-Krause method of analysis about one-third of the class completed their seventeen microscopical analyses with an average deviation from the true composition under 5, one-third were grouped between 5 and 10, and one-third were over 10.

In the spring of 1927, it was decided to try out the dot-count method of analysis with a limited number of the fiber determinations. We were very much surprised to find that the mean error dropped immediately from 8.3 to 4.4. As a result of this trial, the method was adopted for all fiber analyses in 1928. The mean error for this year on all fiber suspensions, 108 in number, was 5.3. The error on all papers, 45 in number, was 4.1, making a total average deviation of 4.7 for the year which, incidentally, was the smallest average error ever obtained in these student classes.

The results obtained by these students with the dot-count method would seem to indicate that the method has real merit, especially in the hands of relatively inexperienced analysts or chemists in the industry who are obliged to make fiber determinations only at occasional intervals. The method is so mechanical in nature that the element of personal judgment seems to be largely eliminated and enables the amateur to obtain approximately as accurate results as the expert. For this reason alone it is the opinion of the chairman of this committee that the method should be recognized by the Technical Association as an official method to be selected for use on official work at the discretion of the operator. It is not felt that the method should be designated as a preferred method to supersede any of the official methods now in common use but rather that it should be advanced to equal rank with all of these older and commonly used methods. In this connection it may be of interest to note that the American Society for Testing Materials after a rather complete survey of existing microscopical methods and a series of cooperative laboratory tests have adopted the dot-count method as their official tentative standard for the analysis of roofing felts and it is now the only method for this analysis that is included in their book of tentative standards.

It is suggested that some further work be undertaken on the dot-count method with the object of determining a set of mathematical factors for adjusting the observed results for mechanical wood fiber and deciduous soda chemical fiber to their correct values. Since the results for these two constituents are consistently low and high, respectively, it seems likely that a set of compensating factors could be determined which would further enhance the accuracy of this method.

Report of Sulphate Pulp Committee

By C. K. Textor,[1] Chairman

The work of the sulphate pulp committee this year is chiefly a continuation of the work undertaken last year: (1) An investigation of the loss of soda from the recovery room stack and of means to avoid these losses, and (2) The study of methods for determining the paper making qualities of a pulp. In addition to these problems, one which was undertaken by the committee in a preliminary way in 1926, a study of the efficiency of the several methods of pulp washing, is to be the subject of a more intensive investigation.

The first of our subjects has had the least actual investigation due to the difficulties in the determination of amounts of soda in the stack gases; the direct determination by sampling the gas is a considerable undertaking and an attempt will be made to establish a satisfactory indirect method. Apparatus for the removal of soda from the gas have been investigated but have to date been found inadequate or very expensive. There are, however, a few methods which do not seem to have been tried and which we hope to be able to investigate before the year is out.

The report of last year's committee, involving the results of the pulp quality determinations made on identical pulps according to the several methods employed by five different laboratories, indicate agreement only along the most general lines. As last year's work considered only the effect of beating on bursting strength, the present attitude of the committee is that additional factors such as tearing resistance, freeness, purity, etc. must also be measured as a function of beating in order to get a working idea of quality of pulp.

Two years ago a great deal of interest was shown in the subject of pulp washing and a questionaire brough out a good many answers. Unfortunately the range of efficiencies computed from the replies indicated faulty methods of analysis and measurement, and the need for standard or uniform methods as a fundamental for such an investigation.

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Requirements For Fiber Containers in Service*

By C. A. Plaskett[1]

The purpose of any shipping container is to aid its contents to withstand the hazards of transportation, and to facilitate handling and stowage. Two considerations, therefore, are fundamental in arriving at the requirements of fibre containers in service: (1) The nature of the commodity, and (2) the hazards and other conditions of transportation and of storage.

The protection required by commodities varies from that of merely holding together a number of units of an article to that of elaborate protection against shocks and stresses, vermin, and pilfering. Some commodities require protection against stacking loads, puncturing, and mashing at the box corners, whereas other commodities are able to support the container in resisting these hazards. Again, some commodities require protection against shocks and inertia of the parts, while other commodities require protection against shifting and rubbing. Each commodity, therefore, requires different characteristics in the container and also different characteristics in the board[2] from which it is made.

Packages in shipment are subjected to innumberable kinds of hazards, such as tumbling and dropping, the starting and stopping of loaded cars, the swaying of motor trucks, stacking in stowage, hoisting with slings, and striking sharp objects.

Even with the multiplicity of existing kinds of damages and hazards, the kinds of failures that occur in fiber containers are relatively few. The chief ones are tearing at the scored edges, crushing, mashing at the corners, puncturing, and opening at the seals. Damage to the commodity may also result from lack of sufficient cushioning against shock.

Failure at the scored edges results from the thrust of the box contents caused by shock. For example, if a box of sheet paper is dropped so that the sheets strike on edge the impact causes the sheets to bend or buckle and thus exert an outward pressure, which is resisted by tension stresses in the box faces and at the scored edges. Because of the manner in which the box edges are formed, such thrust is resisted at the scored edges mainly by tension stresses in the outer liner. The inner liner and the adjoining plies cannot act in tension to resist the thrust of the box contents until the outer liner and the adjoining plies have stretched or failed, because scoring and folding the board to form the box edges causes a crimping of the inner liner and the adjoining plies. The extent of the crimping of the plies depends largely upon the thickness of the board, the nature of the score, and the moisture condition of the board at the time of scoring. Where the box contents are supported at only a few points along the scored edge, as they are, for instance, by the rims of cans, the thrust resulting from shocks usually develops a local tension failure in the outer liner, which progresses to the inner liner. The tension stresses then combine with tearing stresses as the failure progresses along the box edge. The amount of stress transmitted to the horizontal and to the vertical scores depends upon the shape of the box, the nature of the commodity, and the manner in which the commodity is packed. The greatest stress usually occurs at the longest scores of the smallest box face; therefore, the best results normally require that the longer horizontal scores of each face have higher strength in tension and tearing than the shorter vertical scores.

Any deficiency in the fiber board or in the process of scoring that lowers the tensile strength of the outer liner, or causes rupture of the fibers when the board is folded into position, reduces the resistance to failures at the box edges. Resistance to these failures is also decreased if the scored edges are abraded from sliding on a car floor or other rough surface.

Appendix A gives further information on the effect of scores.

Compression Effects

Crushing of fiber boxes usually results from quiescent and weaving loads in stowage and from shocks such as those caused by packages shifting or tumbling during the starting or the stopping of a loaded car. Crushing in storage not only allows the weight of other packages to be transmitted to the box contents but the distortion causes the boxes to topple over.

Since the box faces are joined at the edges, each face, in resisting compression forces, acts as a supported column and hence failure occurs mainly by a rolling over of the scores, with a continuation of the separation of the plies. Failures also occur by a general buckling of the board. The resistance to rolling of the scores depends largely upon the form of the score and the resistance to separation of the plies. The resistance to buckling depends upon the thickness of the board, the tension and compression strength of the individual plies, especially the liners, and the resistance to separation of the plies. Corrugated fiber board has less strength than solid fiber board in resisting separation of the plies but the greater thickness of the corrugated board aids it in resisting failures by buckling under compression.

Mashing at the box corner results largely from the package being dropped or struck by other objects. The shocks cause a local buckling and separation of the plies much the same as the rolling of the score under compressive loads. Although the same general characteristics are required of the box to resist both types of failures, resistance to separation of the plies by shear stresses is more important in preventing pronounced mashing at the corners.

Shock and Puncture Resistance

The ability of a container to absorb shocks without damage to its contents is often important in shipping fragile articles. Absorbing shocks is essentially bringing to rest a body that is in motion. This involves two factors, (1) the force exerted and (2) the distance through which the force acts. Damage to fragile articles caused by shocks is avoided by absorbing the shocks with a small force. A solid fiber box, because of the thinness and consequent lack of stiffness of its sides, absorbs shocks mainly by a bending or springing of its entire sides, and a corrugated-fiber box absorbs shocks mainly by the mashing and springing of its corrugations. Mashing of the box corners absorbs considerable shock but usually fiber boxes are so weak in resisting mashing that considerable local damage occurs to the box contents.

Puncturing of fiber boxes usually results from the box striking a pointed object or from the thrust of its contents. Puncturing is primarily a tension failure combined with tearing. The same qualities, therefore, are required of the board to resist puncturing as are required to resist tearing at the scored edges.

Sealing Failures

Sealing failures in a fiber box result largely from shearing stresses between adjoining flaps caused by weaving of the box and by the thrust of the box contents. A box sealed with silicate of soda or other adhesive may fail through the liner peeling from one of the flaps, or through the flaps separating because of a poor bond or insufficient strength in the adhesive. Gummed tape applied along the edges of the outer flaps may peel off or fail in tension across the tape and through tearing lengthwise, and wire stitching or metal staples may fail by working loose and pulling through the board, or by tearing out at the edges of the flaps. Failures in the seals can usually be avoided with practically any board by careful workmanship. Soft-surfaced boards

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[2] The term "board" as used in this paper refers to the completed board that is ready for scoring.

are more easily glued than hard-surfaced boards but when care is exercised in the sealing process the hard-surfaced board gives the stronger seal.

The resistance of a fiber box to diagonal distortion and twisting depends largely upon the rigidity of the seals and the thickness and the stiffness of the board. A fiber box properly sealed with silicate of soda has high resistance to such deformation, but if the sealing flaps of either face are not fastened together firmly the box loses most of this resistance.

Appendix B gives further information on the effect of seals.

The resistance of a fiber box to absorption of moisture is important primarily because the presence of too much moisture lowers the strength and the stiffness of the board.

Use Requirements

The chief requirements of a fiber box in service, which vary with the commodity and the method of shipment, may be summarized as follows:

1. High resistance to the failure at the scored edges that results from the thrust of the box contents.
2. Resistance to crushing through compression loads and through other objects striking or falling on the box.
3. Resistance to mashing when dropped on a corner.
4. Resistance to puncturing by sharp objects.
5. Ability to absorb shocks without damage to the box contents.
6. Resistance to diagonal distortion and twisting.

It is evident, therefore, that no one board is the best for all containers, because a property that is desirable in meeting one set of conditions may be a detriment under other conditions. Thus, increasing the thickness of the board increases its ability to withstand compression loads, mashing at the box corners, and makes the board stiffer, but at the same time decreases its ability to absorb shocks through bending, and makes scoring of the board difficult. Ability of the board to stretch facilitates scoring and the distributing of tearing stresses, but reduces the resistance of the board to buckling and to crushing at the box corners. High resistance to separation of the plies aids in resisting crushing and mashing at the box corners but makes scoring difficult. The proper balancing of all these factors for any particular condition requires careful study and will never be accomplished except through tests and observation of containers in service. Such balancing will always be necessary because a single board that will be ideal for all containers can never be manufactured, and neither is it practical to manufacture a different type for each condition of service.

Methods of Testing

A number of tests have been developed for measuring the strength properties essential to a fiber box. Some of these tests are made on the fiber board, some on the individual plies, and some on the completed box.

Bursting Strength.—The bursting-strength test, known as the Mullen and Cady test, is the standard used as a basis for specifications for fiber boxes. This test indicates certain qualities of the board itself, but it does not give an accurate measure of the relative strength of completed boxes. Investigations have clearly demonstrated the need for a test on the score of fiber boxes, since the strength of the score appears to depend more upon the condition of the board at the time of scoring and upon the scoring process than upon the quality of the board.

Strength of the score.—A fiberboard score tester has been designed by the U. S. Forest Products Laboratory to test the score of a fiber box. A specimen, 1 inch wide and about 4½ inches long, containing the scored edge midway between its ends, is cut from the box and by means of this machine is tested in combined bending, tearing, and tension; the action of the machine is quite similar to the forces causing failures at the scores of a fiber box in actual service. Tests on the scored edges of the box are especially valuable for determining the efficiency of the scoring process.

Crushing strength.—The resistance of a fiber box to crushing under stacking loads is influenced by the form of the score, the properties of the board, and the support of the box contents. The most practical means of determining the strength of a fiber box in resisting crushing is through applying a compression load over the whole surface of one of the faces and observing the crushing that occurs at different increments of this load. Crushing the box ½ inch usually allows the load to be transmitted to the box contents.

Resistance to corner mashing.—The resistance to mashing at the box corners may be tested either by dropping a loaded box on a corner, or by setting the box on one corner and applying a load at the diagonally opposite corner and observing the force required to cause different amounts of mashing.

Puncture resistance.—The resistance of fiber board to puncturing is usually tested by dropping a pointed object from a predetermined height on the face of a fiber box and observing the extent of failure. The amount of puncturing will depend upon the size of the box face and the quality of the board as well as upon the nature and the weight of the point. Comparisons obtained through testing boards of a standard size are more accurate than those obtained through testing the faces of completed boxes.

Shock resistance.—The ability of fiber board to absorb shocks by bending, mashing, and springing is usually determined by dropping a loaded box in different positions from a predetermined height and comparing the damage to the box contents with the damage occurring in other boxes tested in the same way.

Distortion resistance.—The object in developing tests of shipping containers and of container materials has been to determine their weaknesses. Since a properly sealed fiber box of the ordinary size and shape has ample strength to resist the diagonal distortion and twisting stresses encountered in service, no test of these characteristics has been developed for fiber boxes.

Tumbling tests.—Tests in a tumbling drum that subject a loaded box to most of the hazards of transportation except crushing are especially valuable in determining the weaknesses of a fiber box and in balancing the different strength characteristics.

Further tests necessary.—In the past tests of fiber boxes have to a large extent been of the nature of drum tests, which indicate in a general way the suitability of the box to protect its contents. The various strength properties of fiber board that make it especially suitable for a particular condition of use have not been carefully studied, however, either from the standpoint of the built-up board or of the individual plies. As the knowledge of shipping conditions and of transportation hazards increases it should be possible to define more precisely the properties desired in the finished board, and to determine the effect of the properties of the individual plies and of manufacturing methods on the properties of the completed board. The technic of various tests that should be made is probably not far different from the technic of tests that are already being made on other materials, but thorough study will be required to adapt such tests to fiber board.

The proper balancing of the different properties of the individual sheet and of the built-up boards will always need to be checked by tests on the loaded container.

Appendix A.—Effect of Scoring Processes on the Strength of Fiber Boxes

Although the quality of the board is an important factor influencing the strength and serviceability of a fiber box, investigations have clearly demonstrated that, no matter how strong the board may be, the resistance of a box to failure at the scored edges and at the seals may be greatly impaired through improper scoring of the board and also through poor workmanship in sealing the box.

Effect of Scoring

Although the scored edges of a fiber box may be weakened if the dies used to form the scores are of the wrong size or form and consequently make the scores too deep or the bends too abrupt, yet, regardless of the size and form of the scores, the strength of the box edges may be seriously impaired if the board does not have the proper moisture content at the time of scoring.

Improper scoring is usually evidenced by tension failures that appear as either one or two cracks in the outer liner parallel with the score. Cracks at each edge of the score may result from any one or a combination of four causes: namely, scoring the board when it is too dry, scoring the board too deeply, the score being too narrow, or the scoring bar being too wide in comparison with the lower die. Tension failures that appear as a single crack usually result from a scoring that is too shallow or from the scoring bar being out of alignment with the lower die.

Failures resulting from too shallow a scoring or from one too narrow commonly develop when the board is folded, whereas other failures from improper scoring usually occur when the board is scored, and merely become more pronounced when it is folded. High stresses that do not in themselves cause rupture, however, may be introduced when the board is folded, because of too shallow or too narrow a scoring. When such stresses are combined with even small additional stresses occurring in service, they may easily produce failure.

The best results require different scoring conditions for different boards.

Appendix B.—Effect of Sealing Processes on the Strength of Fiber Boxes

Failures at the seals of a fiber box usually result from poor workmanship. Through careful workmanship failures at the seal can be avoided by practically any board, but the ease with which a good seal is obtained depends largely on the character of the board and the quality of the sealing material.

The strength of a seal made with a good grade of silicate of soda or other adhesive depends on three factors, (1) the surface of contact, (2) the time for drying allowed after sealing, and (3) the character of the board. Good contact between the surfaces of freshly glued flaps requires that they be held firmly together until the adhesive has taken its initial set, but to obtain joints of maximum strength additional time must be allowed for drying before the box is handled. This is because the moisture from the adhesive softens the surface of the board and, if the box is handled too soon after being sealed, the joint will fail easily through the outer layer of one of the flaps peeling off. After the moisture has been diffused to the inner plies, the board regains most of its strength. Soft-surfaced boards adhere more readily and diffuse the moisture faster than hard-surfaced boards but with either type the seals can be made so strong that failure occurs in the board itself, and since the hard-surfaced board has the greater strength it consequently makes the stronger box.

Gummed Tape Seals

The strength of a seal fastened with gummed tape depends largely on the position of the tape, the care exercised in moistening and applying it, its quality, the quality of the board, and the time allowed for drying. Gummed tape applied along the seam of the outer flaps and also along the seam between the outer flaps and the end of the box does not produce so rigid a joint as gluing the sealing flaps but if the tape has sufficient strength and is properly applied the box may be fully as strong in resisting rough handling as one sealed by gluing the flaps.

Failures in sealing tape are caused by both tension and tearing stresses. The greatest stresses occur across the width of the tape, the direction in which the tape is weakest. Therefore, increasing the tensile strength of the tape in the direction of its width increases the strength of the box seal. Tape having high tensile strength across its width is also more efficient for fastening the manufacturer's joint at the vertical score.

The strength of a seal fastened with metal staples depends largely on the number and the position of the staples; those along the ends of the outer flaps should be spaced more closely than those along the center seam. The best results usually require that the inner and the outer flaps be fastened together all the way across each end of the box with a row of staples spaced approximately 2 inches apart, and that the overlapping outer flaps be fastened together with staples spaced approximately 4 inches apart.

Essential Requirements of Test Liner for Making A Satisfactory Container*

By H. C. Mc Daniel [1]

The necessary requirements of a good test liner are so well known that in an article of this kind I must necessarily repeat what every manufacturer of board already knows.

The railroad companies have in their specifications certain requirements which must be met in order to have the Containers pass their inspection.

The essential properties of test liners:

1. Caliper
2. Weight per thousand square feet.
3. Finish
4. Mullen test
5. Tensile strength
6. Water proofness
7. Folding quality

Caliper

First is the item of caliper which must be .016 or heavier in order to meet railroad requirements. From experience, it would seem that a liner lighter than .016, for corrugated board at least, is not practical. For special purposes liners have been made as heavy as .030.

Second weight per thousand square feet is not covered by any of the railroad specifications and all mills, as a matter of economy, have tried to keep this weight as low as possible and still make a satisfactory liner. The matter of density is to be considered in this connection, and I believe most manufacturers will agree that a liner too light or of insufficient density will not make as good corrugated box and is not as satisfactory on a solid fibre box. 70 pounds per thousand square feet is, I believe, the standard for a .016 liner. However, this liner, as in the case of kraft, runs as light as 56 pounds per thousand square feet and some mills have succeeded in running as low as from 62 to 65 pounds in the regular jute liner. The density of the liner, of course, has some effect on the Mullen test; some mills preferring to add more kraft pulp and securing the lighter weight, while some mills find that under their conditions it is better to run their .016 liners the full 70 pounds per thousand square feet with less kraft pulp.

* Presented at Annual Meeting of TAPPI, New York, Feb. 19, 1939.
[1] Member TAPPI; General Manager, Waldorf Paper Products Co., St. Paul, Minn.

Finish

The finish of the Liner is also an important item as it, in a large measure, determines the liners resistance to scuffing or abrasion. The finish of the liner is, of course, largely determined by the caliper and weight desired. I presume every one manufacturing liners today is familiar with the various starch solutions that are applied on the calenders which we have found improve the resistance to scuffling to a very considerable extent. In connection with the finish, the color might be mentioned which, of course, is not an important item and is largely determined by the preference of the purchaser. We have experimented with both beater and calender coloring and have found a beater color very much more satisfactory.

The Mullen and Tensile Tests

Mullen test has always been considered one of the most important measurements of properties of a test liner. Liners have been made and sold testing as low as 65 pounds from this on up to 150 pounds or, in the case of kraft, sometimes even higher. We also know that when a minimum test of say 65 pounds is specified, the liner manufactured to meet this test will run anywhere from 65 pounds to 75 pounds and in a great many cases, the purchaser tries to use this for a higher test liner and as a result produces an inferior box. I believe that a liner testing a minimum of 85 pounds should be the lowest test liner used in corrugated boxes. Some manufacturers are advocating the abolishment of tests between 85 and 125 pounds for the reason that some purchasers of 85 pound test liners find the liner running from 85 to 100 pounds and attempt to use this in a corrugated box which is supposed to test 200 pounds. If the 100 pound test liner were abolished and the 125 pound test liner were substituted, it, of course, would be impossible for any purchaser to make this substitution. I do not believe that the Mullen test is all together the measure of a good liner, as in order to produce a high Mullen test it is necessary to so shorten the fibres that a liner of the proper folding quality and of the proper tensile strength cannot be produced. Of course, we all know that we cannot go to the extreme of leaving the fibres in the sheet too long making a soft, raggy sheet which would not have sufficient stiffness to make a satisfactory box. It is, however, my belief that, by proper control of the beating that a very satisfactory liner can be produced with possibly a lower Mullen test than is generally accepted as being satisfactory today but with a higher tensile strength.

In our plant we are just installing a more complete laboratory than we have heretofore had with the expectation of being able to control some of these factors. We have never produced a liner with the idea of obtaining a high tensile strength, and I am, therefore, not in a position to enter into any technical discussion on this point. We hope to know more about this in another year

On this subject of tensile strength, I believe that it is very important that the outer liner of the test liner have a very high tensile strength, as least it must be sufficient to stand the elongation in the sheet due to bending and still not rupture.

Waterproofness

The waterproofness of the liner, is controlled by railroad specifications. We do not consider it desirable in our mill to oversize the outer liner for the reason that the sealing of the finished container cannot be as satisfactorily accomplished as with a liner with less size in it. I know that some mills think it a desirable practice to sufficiently size the outer liner of the liner to meet the necessary requirements, while others believe it a more desirable practice to size the full .016 of liner sufficiently to meet these requirements. We subscribe to the latter theory, as we find too much size in the outer liner prevents the sheet taking a nice smooth finish and somewhat enhances the tendency to scuff and rub. However, it is desirable to have sufficient size in the outer liner to get a satisfactory printing surface especially where gloss ink is used in the printing. Fibre and corrugated containers in use are subjected to all sorts of atmospheric conditions and it is highly desirable that the board be sufficiently moisture proof to prevent undue absorption of moisture which lessens the physical resistance to both inner and outer puncture and failure.

There is one other property which I have not touched upon as yet and that is the general appearance of the liner. One of the principal selling points of today is the advertising value of the paper container. Many containers carry very fancy printing and it goes without saying that the general appearance of the liner must be such as not to detract from any advertising matter desired by the purchaser.

Folding Qualities

The folding quality of the liner is a very important property and is closely related to Mullen test and tensile strength, that is, if the board is made with a reasonable high Mullen test and sufficient tensile strength, there should be no trouble with the bending quality. I am also firmly convinced that the manufacturers of solid fibre and corrugated containers will find it very desirable to keep their plants at the proper humidity. Especially is this important in the winter time when plants are heated. In some tests that we have made around our own plant, we find the humidity as low as 20 per cent. Board standing in atmosphere as dry as this for any length of time will lose nearly all of its moisture and board that is nearly bone dry cannot be expected to fold properly.

A Satisfactory Liner

In summing up, I would say that a liner of any specified Mullen test when properly made; that is, closely formed on the machine and the outer liner developed to maximum tear resistance, and tensile strength, which can be accomplished by proper beater room control, and with the filler of the liner well beaten and reasonably short fibred to give as close formation as possible and given the proper amount of calendering with an application on the calenders of any of the well known surface coatings, a very satisfactory liner will be produced.

Report of Materials Testing Committee

By Jessie E. Minor,[1] Chairman

It is the hope of this Committee that it may serve as a clearing house for all information and all ideas which may be in the minds of the members of the Association with reference to methods of testing pulp and papermill raw materials. Considerable correspondence has been carried on with the intent of soliciting aid from those most capable of giving it. The response of the members of the Committee to the request that each one choose and develop methods of testing one or more raw materials has been most gratifying.

The work now in progress by this Committee includes the methods of testing clay, talc, agalite, pulp pitch, bleach, bleach sludge, quicklime, hydrated lime, limestone, rosin size, glue, starch, sodium silicate, salt cake and water.

These methods are being written in a form very similar to that used by the A. S. T. M. and the one which has been outlined by the Committee on Standard Methods of Testing.

Most of the materials on which the Committee is now working were included in those discussed in the edition of Standard Methods published in 1924, but it was considered that sufficient time had elapsed to justify the Committee in having these methods checked over and revised to date.

[1] Member TAPPI; Research Associate, U. S. Bureau of Standards for the Rag Content Manufacturers Association, Washington, D. C.

Newly Organized Paper Board Committee Studies Program of Work

By C. C. Heritage [1]

The increasing interest displayed by members of the Technical Association in the problems of paper board manufacture and use and the constantly increasing number of paper board men taking membership in the Association led to the formation, during the latter part of 1928, of a Paper Board Committee to deal with the many technical problems of this branch of the industry. This action is amply justified by the important position that paper board now holds in the industry. Variety of output, total tonnage, and the technical problems peculiar to the production of thick and relatively heavy sheets composed of a multiplicity of webs formed on rotating molds, all give paper board a commanding place.

Through the good offices of the Secretary of the Association, a well-balanced and representative committee was appointed. It consists of the following members.

A. B. Bradley, The Fiber Conduit Co., Orangeburg, N. Y.
W. W. Galloway, Hager Straw Board and Paper Co., Cedarville, Ohio.
R. A. Gormley, United Paper Board Co., Lockport, N. Y.
W. F. Goldsmith, A. D. Little Inc., Cambridge, Mass.
A. R. Harvey, Gardner and Harvey Co., Middletown, Ohio
H. C. McDaniel, Waldorf Paper Products Co., St. Paul, Minn.
H. L. Rammer, Fibreboard Products Inc., Stockton, Cal.
E. F. Whittington, Standard Paper Company, Kalamazoo, Mich.
L. L. Wilson, Morris Paper Mills, Morris, Ill.
G. R. Wyman, Bird and Son Inc., East Walpole, Mass.

A great deal of attention has been given to surveying the fields of work open to the committee, the general objectives to be attained, and the immediate work in which to engage. These matters were outlined to the Committee by the Chairman in correspondence, both in a preliminary way and later in detail. They can be touched upon but briefly in this report; full discussion at the sectional meeting on paper board during the annual meeting is planned.

Relative to the fields of work, the activities of the committee appear to center around four interrelated materials: Namely, the consumed product, paper board itself, stuff, and the raw materials. The requirements of the particular use to which a specific product is put seem to constitute a logical foundation upon which to build committee studies. Progress comes about through producing a certain finished sheet with properties that satisfy definite use requirements, then producing a certain stuff suitable for this sheet, and finally securing or producing the raw materials proper for this stuff.

Each of these four materials is capable of evaluation through its physical and chemical properties. The methods for the precise determination of these properties constitute the tools by means of which we learn whether the various materials will finally yield a product satisfactory for consumption.

Each successive pair of these four materials, paper board and stuff for example, is connected by a group of operating variables, through manipulation of which one material is converted into the next in order. The use requirements of the consumed product demand certain properties in that product. The converting variables link that product with the mill-made sheet, the cylinder machine variables join the sheet with the stuff, and the fiber processing variables connect the stuff with the raw material.

The general objectives to be attained which appear to follow logically from the foregoing, are as follows:

First: The delineation of the use requirements for the major classes of consumed products made by converting paper board.

Second: The numerical evaluation, by means of new or improved methods, of paper board relative to its use, of stuff relative to paper board, and of raw material relative to stuff, through their respective properties.

Third: The determination of the effects of the converting variables the board machine variables, and the fiber processing variables on the properties and costs of the various materials involved: Namely, consumed product, board, and stuff.

The immediate program of work remains to be discussed in sectional meeting and finally decided upon by the committee. Apparently activity should be directed toward those matters of greatest immediate importance to the mills; they probably involve all of the foregoing broad objectives. A sectional program, arranged for the annual meeting, consists of four papers discussing the requirements of fiber containers in transit, and the properties of test liner, corrugating board, and chip board as related to these requirements.

The practical importance of an accurate knowledge of use requirements and corresponding properties appears to be great, since they deal with the making of a more useful product at the same cost or a product of the same usefulness at lower cost; such knowledge, when obtained, will tend to bring buyer and seller into agreement on the essential points of a fair bargain, thus insuring mutual satisfaction and incidentally reducing selling costs.

This report is concluded by mentioning briefly a number of developments of interest technically that are now going on in the paper board field. The variety of pulps being employed, particularly for the manufacture of test liner, is increasing tremendously. Aside from the old standard waste-paper sheet and the more recent all-kraft sheet, use is being made of screenings of various sorts properly refined, of treated ground wood, and of mildly cooked pulps, both semi-sulphite, semi-chemical, and semi-kraft. Paper board manufacturers are beginning to realize their opportunities to materially reduce costs and improve quality, through employing pulps obtainable in yields of 60 to 75 per cent by weight of the original wood. The wide variety of test liners available to the trade is raising many questions concerning the means available for determining relative values for container manufacture. The manufacture and use of semi-chemical chestnut corrugating board has increased rapidly during the last year.

The advent of mildly cooked pulps has given considerable impetus to the development and use of new fiber-processing equipment. Rod mills, hammer mills, disk and roll refiners, modified Jordans, and improved beaters are all sharing alike in the industry's interest. Valuable results are certain to come from this activity.

The fields of use for paper boards are constantly being extended, as for example, with food containers. Coarse pulps are being employed in increasing amounts for laminated paper board and homogeneous insulating board. Many new producers have entered the insulating board field.

A new score tester for built-up fiber board, which employs a sample of paper board cut directly from the box and containing a score, subjects the laminated material to combined bending, tearing, and tension stresses, until failure. It expresses numerically the overall serviceability of the material.

[*] Presented at Annual Meeting of TAPPI, New York, Feb. 19, 1929.
[1] Chairman Paper Board Committee.

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Cost Control in Pulp and Paper Mills*

By L. V. Alden[1]

The modern executive is appreciating the fact that time and operation standards are of major import in management, that the manner in which these are handled frequently means a difference between profit and loss in his balance sheet and a choice between contented workmen and labor unrest.

The use of time study particularly in the finishing departments of paper and pulp mills is spreading rapidly—more rapidly perhaps than a thorough understanding of its principles. Lack of appreciation of its importance on the part of chief executives may lead, on the one hand, to the hiring of inexperienced young men to handle a job that requires experience and judgment and, on the other hand, to the engaging of service vendors to introduce a "system" dealing simply with the placing of a piece price upon a job without regard to its manner of performance or to its setting in the business as a whole. Similarly the development of technical control in the making of pulp and paper is being recognized in many mills, but frequently is resulting in routine follow-up instead of real control.

The improvement of any business, whatever its nature, requires a broad treatment dealing with finance, marketing, budgeting, master planning, inventories, production control, standardization, wage determinations and cost control. The development of time and operation standards although only one element in the broad improvement program, is an element of vital importance and one that should not be treated independently nor to the exclusion of the other elements. It should rather be part of a broad conception which includes, allows for and develops all aspects of the program.

Results of Time Standards

Time standards, properly developed through time or motion study, (1) reduce labor cost through a higher and more uniform rate of production; (2) reduce idle time of men and machines through the accurate planning which they make possible; (3) maintain, insure or improve quality by aiding in the adoption of uniform and best methods; (4) aid sales by providing accurate knowledge of labor costs, and (5) improve labor conditions and decrease labor turnover by giving a square deal and increased earnings to the worker.

Purpose of This Paper

This paper is designed, first, to present fundamental principles and practical methods of using time studies in the various functions of a business and, second, to show specifically the place in industry of time measurement and job analysis as tools for cost control.

It is not assumed for a moment that time study is a cure-all for irregularities in management—that its use can smooth out all the "wrinkles." In a machine shop, for example, the establishment of standards of feed and speed may precede time study to good advantage. In a pulp and paper mill, the process standards are often more important than time standards and result in reduction of labor and easier performance. Time study further assists however, in obtaining and maintaining process standards. Furthermore, it is apparent that the basic principle of time analysis, that is, *the consideration of the elements of any problem,* whether it be in process, machinery or men, forms the basis of our wonderful present-day developments along research lines.

Time study is often looked upon simply as a mechanism for setting piece rates, and of course determination of standard times for fixing incentives is of great value. Time study has, however, a still broader use which is insufficiently recognized. It is a tool for the development and operation of controls that enables management to know what a standard day's work is and to obtain this standard from each machine and work place. Thus a maximum production is secured from a minimum of equipment and personnel. The by-product of this is a highly productive and *highly paid* personnel. Treatment of the subject, therefore, must include these factors, so important from the point of view of both material and human economy, and also the usefulness of time standards in fixing the selling price of manufactured articles.

Uses of Time Study in Business Management

The field of time and motion study with its effect upon a business as a whole is scarcely appreciated, even in the more modern plants. Illustrations in later paragraphs are of particular interest in showing what an important tool time study can be made in practical plant operation, from the standpoint both of economy and of labor relations.

The two most important uses of accurate time standards are (1) fixing measures for determining incentives that accurately balance different operations, insure the best methods of operation, provide for ease of production and promote uniformity of quality of product; and (2) production control, where the time standards are utilized in co-ordinating the number of operatives with production or in co-ordinating production with the number of operatives. This latter function is particularly applicable in finishing rooms and among converters.

The results are a minimum of idle time for operatives and

* Delivered before the Connecticut Valley Division of the Cost Association of the Paper Industry at the Hotel Kimball, Springfield, Mass, April 23, 1929.
[1] Thompson & Lichtner Co., Inc., Boston, Mass.

machines, the shortest time in process, delivery of goods on schedule, reduced costs and increased earnings of operatives.

In addition, accurate time standards are essential in the establishment of correct cost standards in the manufacture of complicated products or a variety of styles.

To accomplish satisfactory results along these various lines time study must be based on certain essential principles. The so-called time study which is frequently employed does not follow these requirements and is therefore totally inadequate to accomplish these results.

Essential Principles of Time Study

There are certain fundamental principles of time study analysis which are of universal application. The disregard of any one of the following principles will almost inevitably destroy the value of the time study.

1. The prime purpose of time study is to enlarge production effectiveness through improved methods and thereby to increase returns to the individual worker.

2. Time study must be practiced as a settled policy through a man or department, not controlled by departmental foremen.

3. Time studies must always be made with the knowledge and co-operation of the operative observed. If practiced secretly, they are subversive of morale and futile in results.

4. Tools and machines must be standardized in advance of or in conjunction with time analysis, if such standardization has not already been accomplished.

5. Methods of performing each operation and the quality of workmanship must be studied and recorded, as well as the times. Time studies which disregard methods are of little value.

6. The stop watch must be run continuously and, in addition to the effective times, all delays should be recorded and described.

7. Studies must be made of the time elements of each operation, divided into small enough units to be utilized in various combinations.

8. Enough operatives must be observed to obtain fair average time standards, and before utilizing the data continuous check production studies, lasting several hours where possible, should be made.

9. A more expert handling, a more careful training and a greater intelligence are required for the analysis of studies and the establishment of standards than for taking the studies themselves.

10. It is important that records should be intelligible to persons other than the original recorder and that they should be available for the inspection of those interested.

These essential principles in general are self-explanatory and their importance is evident. The points enumerated are taken up in subsequent parts of this paper.

Principles of Unit Times

As long ago as 1885, Frederick W. Taylor developed the principle of unit times; that is, the breaking up of an operation into motions or elements which can be used for recombination into various other operations in the same way that the twenty-six letters of the alphabet in different combinations can be made to spell many thousands of words. Notwithstanding the time that has elapsed—over forty years since this discovery by Taylor—it is astounding how few time studies are made in such a way that they can be utilized properly. In other words, the vast majority of so-called time studies, even at the present time, simply record the total time of the single operation observed, with no thought of the best method, with no analysis of delays and with no recording of the elements of which the operation is composed.

In one of the oldest industries in the use of incentives, where piece work is nearly universal, we venture to say that of all the plants in that industry, those that set piece rates by any other means than guess and comparison—those who really consider the correct time for each element of an operation—number a small fraction of one percent. And yet it is the utilization of these unit time elements that makes it possible not only to eliminate the irregularities in piece rates, to give the workers a fair deal, and to fix incentives on new styles, but it also provides a correct basis for determining the number of personnel for any required production and the most economical layout of work.

The Crime of Improper Time Study

The vast majority of piece rates or other incentives, even at the present day, are set by guess or estimate. A common plan is simply to time the operations as they are going on, without regard to the method. The opportunity to effect large cost reductions through improvement in method is thus neglected and the way prepared for irregular, abnormal earnings. Another plan is to take simply over-all times without analysis into units, so that new times have to be taken for every new job. Still another plan, very common, is to time the operation very carefully into units or elements and then not use these elements at all.

In shop after shop, the rates are set by the judgment of the foreman, based on approximate records or on tests under abnormal conditions, checked possibly by inaccurate times which the foreman takes from a stop watch carried in his pocket.

Here is an illustration of a really common method of rate setting. In Holyoke not long ago, talking with a young man in a paper products factory, I asked him how the piece rates were set. He looked at me rather humorously—he had taken an industrial course at college—and said, "Well, the foreman looks over the past records and sees what has been done on similar jobs and then he figures it up and thinks it over. He considers what he thinks he could do if he were performing the operation and then sets a rate. If the men kick like hell, then we know that the rate is right."

To show what a textile mill foreman honestly thinks is the proper way to set piece rates, I quote from an article in Textile World of September, 1927, entitled "Uniform Piece Work Rates. Studies by Foreman Result in Fair Rates."

It is not difficult to establish uniform piece work rates. The foreman can time operations at the various machines. This is usually done by forcing production at certain machines and when production is at its height, securing the time of the operator without his knowing it.

It is very important that the employes be unaware of the timing, or they are apt to slow down production, thus defeating the purpose of the timing. By using the timing process, uniform rates can be established, and every piece worker then has an equal opportunity of making a living wage depending upon his individual skill.

No wonder, with such practices as this—and unfortunately this represents actual practice in many plants—time study is often misunderstood and condemned.

But even where the foreman does have a clear idea of what he is driving at, he simply cannot be expected to handle a specialized thing like time study or the fixing of incentives with satisfaction. Inaccuracies such as are always incident to this kind of rate setting were revealed in a garment shop recently. The factory in question manufactures coats and the operation of "making" was on piece work. The plant was fairly well managed. In examining the operations before making time studies to set accurate incentives and also to use in planning the work, discrepancies such as these were found. On five principal operations the operatives worked from seventy-seven per cent to ninety-two per cent of the hours they were in the plant and loitered the rest of the time. Any planning data based on earnings and hours would have been inaccurate in total from eight per cent to twenty-three per cent and, when the irregularities of the individual piece rates were also considered, there were discrepancies of as much as fifty per cent.

In a plant in another industry, the piece rate on a new style was carefully estimated by an intelligent foreman. In spite of

this the operative earned a little more than double the hourly rate the foreman figured he should earn. In other words, the foreman's careful estimate of the time standard was over one hundred per cent high. Estimates such as these are just as likely to be wrong in the other direction.

There is another type of so-called time standardization that frequently is carried on as a fixed policy. The purpose is to set rates quickly. It results, however, not only in inaccurate times, but in the necessity of timing the operations on every new style or part, instead of utilizing the unit times obtained by thorough analytical study to quickly set the new time. These "get rich quick" methods take no note of the method of performing the operation and make arbitrary allowance for the speed of the operator, relying entirely on judgment to fix the allowance and set up new independent times for each job.

This scheme had been in operation in a plant making machinery of complicated and diverse design requiring an immense diversity of small parts, many of them made up very infrequently. When an order for a new part came along, instead of utilizing data on file, the time study man would go out to the operative and take an observation on the first part of a lot, which might occupy the worker from less than one to three days. From these few studies on this one man he would set a rate, guessing at the proper allowance for rest and the variation in speed of the worker from the average. The results were, as would be expected, a heterogeneous set of times and rates, with no uniformity. For example, in checking the so-called standards, it was found that two machine parts, precisely alike but carrying different numbers because belonging on different parts of a machine, were given at different times separate piece prices differing by twenty-five per cent. In other words, two identical operations were "standardized" at different times, with a twenty-five per cent variation in the rate.

True, this method of setting standards begins to show results immediately, but it never comes to an end. On the other hand, the methods which give accurate results are simple and scientific, require much less time and labor, taking all in all, and, as time goes on, reduce the time study work to a minimum.

A discussion of improper methods is scarcely complete without reference to certain practices of employers, which fortunately are growing infrequent, those of using time study for undue speeding up. As a matter of fact, in practice such purposes soon defeat themselves. On the other hand, the stop-watch is an effective tool for labor co-operation and cost control because through it facts may be established that cannot be gainsaid. In practice, contrary to common belief, it is the workman who appreciates, even more quickly than the employer, the value to him of real time study and it is he who can gauge the correctness of its operation.

Time Standards in Production Control

The use of time and motion study as a broad gauge tool of management, as well as for the purpose of rate fixing, is only beginning to be recognized. Mention has been made of this broader use as it relates to managerial control, although the treatment thus far has chiefly considered the operation of time and motion study in the determination of the standards themselves. The setting of incentives is only one of the uses for exact time standards; of equal importance are other uses in planning production so that manufacturing schedules will really fit the factory force and equipment, in determining the proper number of employes for given schedules, in evaluating quality, in developing the best methods of operating and in determining labor costs to use in fixing sales prices. It is in its relation to these features as well as in its use for fixing accurate incentives that the value of time study is evident as an effective tool for cost control.

The lack of appreciation, even in otherwise well regulated mills, of the time element in planning and scheduling is astounding. In our contact with various plants throughout the country, we find that most of them have certain elements of what is essentially "scientific management" although many would scorn to designate it by that term. We find, for example, that many of the up-to-date shops, and especially the larger ones, have the materials well under control with running inventories substantially identical with the "balance of stores" originated by Taylor; we find the fundamental principles of planning the work; we find manufacturing orders made out in fair shape and a certain amount of planned control in most of these plants. Yet in case after case there is the serious lack of this "time" element in planning. In other words, in making out a manufacturing schedule there is practically no study made to see whether the time capacity of all important machines and men is equal to the task required.

This disregard of the time element produces a lack of coordination, which in turn causes many of the troubles which result in congestion in certain departments or work places with famine in others, in the excess or deficiency of employes on different operations, in unnecessary time in process and in a consequent failure to make deliveries on schedule time. Idle time of machines or of operatives either from waiting or from slowing up the work is inevitable. This means also an increase in unit costs of production.

To overcome this delay and lost time, which is particularly noticeable in plants making complicated lines of products, the time element must be an important feature in the planning of the work.

In practice, it is possible quickly to figure in advance from the standard times how long is required for each item of a schedule, and this can be done by the unit time method whether the styles are new or old. Then either the schedule can be adjusted to fit the operatives, or, if this is impossible, as it frequently is because of hand-to-mouth buying or seasonal demands, the number of operatives required for each daily or weekly schedule can be figured in advance so that the foreman will know how to provide the necessary force to turn out the scheduled work.

Cost Control Through Scheduling

Such scheduling as this has a remarkable effect in reducing costs in a department. If work is on a piece work basis, the employer frequently fails to recognize the fact that loss of operating time is costing him anything. As a matter of fact, since it is the weekly envelop that counts rather than the price per piece, even higher incentives are necessary with poor scheduling in order that the workers may earn fair wages. Frequently, in fact, through proper scheduling, workers may receive appreciably larger earnings even with lower piece rates. Another factor of saving is in keeping to a minimum the number of indirect day workers. It has been found in practice, for example, that the introduction of scheduling of this kind in the finishing room of a paper mill reduced costs ten per cent, while the same piece rates were maintained and the earnings of the operatives were unaffected. In one case, this reduction in cost was effected by eliminating peaks of production which formerly had been taken care of by keeping an excess of day workers.

Furthermore, by such co-ordination of schedule, waste time is naturally eliminated, a freer flow of work through the shop secured, time in process shortened, and goods are produced and delivered on schedule time.

Ineffectiveness of "Approximate Times"

Frequently the remark is made that this scheduling by times is all very well but that approximate or estimated times will serve the purpose, especially when they are figured backwards from the ordinary piece rates, and even though these have the common large inaccuracies. Experience shows that this is not the case. In order properly to balance the work it is just as necessary to work out time standards accurately as it is to secure well balanced incentives. For example, practically all piece rates based on past records or comparisons contain many items which are inaccurate

by more than fifty per cent. These inaccuracies throw out the entire program of the schedule.

In many instances scheduling by exact times is as much superior to scheduling by approximate times as the latter is superior to haphazard scheduling. In other words, the results are not obtainable by half measures.

Quality

Quality is improved by time standardization and work carried on under incentives is of a higher grade than ordinary day work, provided the incentives take this factor into account by giving the workers special credit for satisfactory quality. In certain industries, such as the continuous processes of pulp and paper mills, incentives may be based entirely on quality and maintenance of standards, with no time element entering in directly. Here it is possible to save amounts running into five or six figures annually through this maintenance of standards.

Importance of Time Study in Fixing Sales Prices

Time study enables the accounting department to translate the normal cost per hour into a standard and accurate unit cost of product, and the sales department to sell the product on a fairly stable and unchanging manufacturing cost. The sales department also can feel fairly well assured that manufacturing costs on this accurate basis are to be adhered to by the manufacturing department. Time standards insure uniform labor costs and are the means of accurately comparing different types of product. The importance of this factor is being recognized by only a comparatively few business organizations. Even at the present time selling departments are often unable to use cost figures supplied by the costing department on account of the radical fluctuation in actual costs, increased or decreased plant activity.

Accuracy of Time Study

On work well standardized as to methods and employing skilled workers, the accuracy with which standard times can be fixed is astonishing. When rates are set by the ordinary methods of past performance and judgment, the earning power of the same operator on different kinds of work usually varies from the average by twenty-five to sixty per cent. On the other hand, when rates are set by unit time or motion studies, as outlined in this paper, this variation is actually reduced in practice to well under five per cent.

In other words, time study is really scientific and a fairly exact art. Of course, different individual workers on the same job do, and should, produce widely different outputs. Furthermore in the case of jobs that were formerly on slovenly day work, the standards set will naturally be improved upon as the experience of the workers increases. This improvement should not be sufficient to be unreasonable, as far as technique is concerned, however. Time study men vary in their methods. Test after test, however, has shown that really skilled time study men, using different methods, will nevertheless attain similar standard times.

Measured Production an Essential to Progress

To achieve advancement it is necessary to have a gauge of comparison. The scientist must have records of what has been done in the past. The business man must know what has been and what can be done. A man is measured by his accomplishments. A factory worker must be able to show his capacity, his skill and his initiative by comparison with others and with his own performance.

As a matter of fact, a measure of accomplishment is essential in any line or phase of business. On the other hand, the lack of satisfactory measures is responsible for a vast number of business failures and for much of the friction between labor and employers.

These are bold statements. But note the continuous unrest in the textile industries where unsystematic business methods and ill adjusted wage payments prevail. Note the attempt in the shoe industry to bargain for what should be a matter of fact record. Note the constant friction in the coal mining industry. But note especially, those of you who employ labor of any kind, the frequent undercurrent of dissatisfaction arising out of inequalities of earnings due to insufficient measurement of production or to inaccurate production control.

All of these facts emphasize the importance of the proper use of "time study" as a tool to correct and develop certain fundamental phases of business management.

Blake, Moffitt & Towne Open New Divisions

An announcement of unusual interest was recently made by Blake, Moffitt & Towne, pioneer paper merchants of the Pacific Coast, telling of the opening of two new divisions at Long Beach and Tuscon, market centers of growing importance in the Pacific Southwest.

With this expansion to include these new divisions, Blake, Moffitt & Towne is rated as one of the largest paper jobbing chains in the country, consisting of sixteen divisions located at strategic points up and down the Pacific Coast.

At both Long Beach and Tucson representative stocks of both fine and coarse paper, paper products and twines will be carried in order to assure paper buyers of each section prompt service on the regular Blake, Moffitt & Towne lines.

The opening of the Long Beach Division came as a result of the purchase by Blake, Moffit & Towne of the fine paper stock and fine paper business of C. R. Eshelman & Son, 326-C American Avenue. This location will serve temporarily as the quarters of the new division, though it is expected, however, that more adequate warehouse and office facilities will be provided in the near future.

The new Long Beach Division has been placed in charge of J. C. Moffatt, for many years the firm's representative in the territory. C. R. Eshelman, whose business has been purchased, will become Moffatt's assistant, devoting his entire time to the interests of the new Division.

The Tuscon Division was established as a result of the purchase of the Pilcher Paper Company, a local organization operated by B. A. Pilcher. Blake, Moffitt & Towne also take over a five year lease on the building, located at 189-191 Toole avenue.

James T. White has been appointed resident manager and it is understood as far as possible that all employees of the Pilcher Paper Company will be retained. It is expected that as rapidly as conditions warrant more adequate stocks of fine and coarse paper, paper products and twines will be added to the Tucson warehouse.

Both Tucson and Long Beach will be operated as direct branches of the company's Los Angeles Division which is in charge of F. M. Couch, vice-president of the parent California organization.

This company owns and operates as its subsidiary Blake, Moffitt & Towne of Arizona, of which E. A. Doran is president. Until the opening of the Tucson division the Phoenix warehouse served the entire state. The rapid strides of this division prompted the company to build a new and thoroughly modern warehouse and office building which was opened last year.

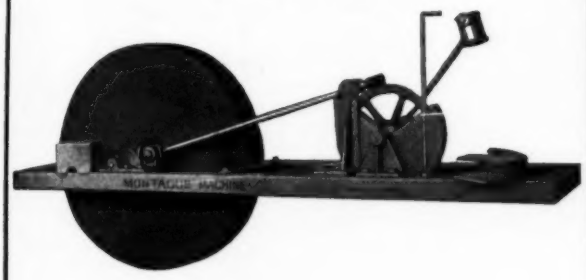
In making the announcement of the Tucson opening, Mr Doran pointed out the striking advantages to paper buyers of having two stocks centrally located in order to serve this rapidly growing market.

Mr. Doran, who has been in the employ of Blake, Moffitt & Towne for over 15 years, in addition to retaining his position as head of Arizona operations was recently made vice president of the parent company and placed in charge of its purchases and sales with headquarters located at the home offices in San Francisco.

The news of these two events have prompted felicitations from members of the paper trade all over the country and the two new managers have been the recipients of well wishes from their friends and customers.

Automatic White Water Sampler

(Patent Pending)



Pulp fibres contained in the white water effluent of pulp, paper and board mills represent an amazing loss in dollars. These losses can be accurately measured. In some instances they have amounted to 10 per cent of the annual production of the mills. The Automatic White Water Sampler is installed in the waste water weir and collects uniform quantities of mill effluent which may be analyzed to determine the actual mill losses each day. Such losses can be remedied.

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A user who feels that way toward a certain paper knows how dependable it is—he knows from experience that it saves him worry and trouble, and he insists upon getting it.

Behind such a paper is a manufacturer who himself places a high value upon dependability. He also insists upon supplies and equipment of proved merit—particularly does he recognize the value of dependable Fourdrinier Wires.

That is why papers of every kind, from the finest tissues and cigarette papers, to heavy wrapping and roofing papers are made on Tyler Fourdrinier Wires.

Let us send you a small sample so that you may see for yourself the firm weave and uniform mesh.

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HUM-MER *Electric* SCREEN

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CLEVELAND, OHIO

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending March 31, and for the Three Months Ending March 31, 1929 as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER

	March				Three Months Ending March 31			
	1928		1929		1928		1929	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and Manufactures (total)	.....	$12,703,930	.....	$12,624,738	.....	$38,482,460	.....	$37,786,549
Printing paper—								
Standard newsprint.....lbs...free	345,790,961	11,235,421	365,987,168	11,105,480	1,046,598,434	34,189,644	1,090,412,660	33,450,537
Imported from—								
Finland .....lbs.	6,033,193	150,309	2,418,739	58,095	17,971,079	487,739	12,494,139	312,617
Germany .....lbs.	974,088	27,304	1,388,917	36,717	4,129,817	112,229	3,765,592	96,771
Norway .....lbs.	3,116,206	84,351	291,518	6,701	5,193,181	134,091	3,169,874	80,821
Sweden .....lbs.	11,178,247	307,136	9,840,512	249,121	32,695,549	883,868	26,225,565	674,600
Canada .....lbs.	324,422,500	10,664,398	349,586,072	10,693,311	959,169,550	31,684,919	1,004,874,240	31,174,171
Newfoundland and Labrador .....lbs.	.....	.....	2,461,410	61,535	26,862,548	870,197	39,883,250	1,111,557
Other countries .....lbs.	66,727	1,923	.....	.....	576,710	16,601	.....	.....
All other n.e.s. .....lbs...dut.	570,403	24,142	301,121	16,855	2,157,802	98,244	1,051,936	52,098
Grease-proof and water-proof papers ..lbs...dut.	96,892	22,114	141,114	24,162	216,766	46,504	369,649	69,981
Kraft wrapping paper .....lbs...dut.	602,881	25,726	440,952	21,232	1,705,484	72,019	1,865,119	80,712
Other wrapping paper .....lbs...dut.	1,637,386	31,372	234,968	10,450	4,938,775	103,426	1,311,802	44,615
Writing, letter, drawing, etc., papers ..lbs...dut.	227,386	55,462	236,214	62,655	549,709	138,604	751,088	188,568
Surface-coated paper .....lbs...dut.	165,836	83,389	189,919	84,663	548,305	255,036	595,839	260,586
Tissue, copying, etc., papers .....lbs...dut.	282,367	180,898	333,403	186,212	830,059	517,713	950,268	502,607
Paper boards, n. e. s.—								
Pulp boards in rolls .....lbs...dut.	5,736,911	130,008	6,185,991	135,474	14,018,649	313,642	15,564,905	354,371
Paper boards, pulp board, and card-board .....lbs...dut.	1,539,056	35,145	1,196,095	30,412	6,762,309	146,138	5,122,837	121,940
Leather board, test, and wall board ..lbs...dut.	45,056	1,844	87,122	3,486	223,366	6,980	458,680	17,910
Cigarette paper, cigarette books, and covers .....lbs...dut.	980,157	263,533	1,301,288	419,484	3,260,274	896,219	2,987,796	1,006,085
Hanging paper (wall paper) .....lbs...dut.	283,073	77,707	242,033	79,537	833,733	209,529	861,628	233,634
Duplex decalcomania paper, not printed lbs...free	24,036	5,638	58,001	13,834	137,693	32,337	182,002	42,745
Paper boxes .....lbs...dut.	.....	155,193	.....	115,262	.....	437,940	.....	357,210
Pulp or papier-maché and manufactures, n. e. s. .....lbs...dut.	.....	18,061	.....	20,663	.....	153,480	.....	193,687
All other paper and manufactures ....lbs...dut.	.....	358,277	.....	294,877	.....	865,005	.....	809,263
WOOD PULP								
Mechanically ground wood pulp .....tons..free	18,861	455,967	14,714	391,551	56,682	1,391,482	50,482	1,326,378
Sulphite wood pulp .....tons..free	53,995	3,295,640	55,212	3,118,480	242,243	14,188,290	241,301	14,050,021
Unbleached .....tons..free	31,595	1,568,915	34,328	1,559,789	168,296	8,572,873	163,024	8,206,610
Bleached .....tons..free	22,400	1,726,725	20,884	1,558,691	73,947	5,615,417	78,277	5,843,411
Imported from—								
Finland .....tons	4,609	186,850	4,535	163,696	24,401	1,001,078	22,035	1,018,878
Germany .....tons	4,365	274,635	1,394	104,612	12,821	868,722	15,056	1,018,860
Norway .....tons	6,438	420,423	3,825	266,172	18,159	1,234,026	12,886	843,249
Sweden .....tons	2,013	105,264	11,806	617,972	89,622	4,860,104	99,073	5,483,779
Canada .....tons	32,604	2,096,253	31,136	1,845,867	85,580	5,572,158	85,885	5,343,323
Other countries .....tons	3,966	212,215	2,516	120,161	11,660	652,202	6,366	341,932
Sulphate wood pulp, unbleached, (kraft pulp) .....tons..free	20,180	1,167,617	19,674	1,123,455	83,613	4,688,797	70,768	3,953,310
Imported from—								
Finland .....tons	3,889	173,533	814	41,652	6,243	275,653	5,930	295,168
Norway .....tons	1,744	91,293	954	57,732	3,472	177,698	2,979	168,965
Sweden .....tons	828	40,688	7,900	403,689	38,334	1,983,809	31,572	1,630,720
Canada .....tons	13,261	840,151	9,467	596,197	34,910	2,221,099	28,286	1,765,528
Other countries .....tons	458	21,952	539	24,185	654	30,538	2,001	92,929
Sulphate wood pulp, bleached .....tons..free	247	15,435	498	44,211	3,930	221,084	3,022	229,303
Other pulp .....tons..free	114	8,636	575	41,333	1,501	108,719	1,481	107,720
CRUDE PAPER STOCK								
Rags for paper stock .....lbs...free	30,756,992	583,982	26,706,962	554,682	100,239,097	1,896,861	93,162,102	1,809,257
Waste bagging, waste paper, etc. .....lbs...free	13,951,310	171,376	10,765,682	128,068	30,822,237	395,111	33,373,423	399,260
Old rope and all other paper stock ....lbs...free	4,608,412	154,160	5,773,711	171,289	13,676,507	386,609	16,781,029	608,341
CHEMICALS AND OTHER PAPER MAKERS MATERIALS								
Colors, dyes, stains, color acids, and color bases, n. e. s. .....lbs...dut.	623,826	$667,893	866,467	$1,017,406	1,626,068	$1,763,702	2,031,377	$2,323,178
Imported from—								
Belgium .....lbs.	16,422	16,383	3,929	4,189	32,139	33,857	8,471	9,625
France .....lbs.	5,500	6,745	7,072	6,556	25,869	34,819	28,525	37,066
Germany .....lbs.	448,032	436,365	628,149	726,082	1,027,353	1,019,435	1,423,685	1,594,103
Italy .....lbs.	3,491	5,439	.....	.....	22,580	20,458	1,980	2,104
Switzerland .....lbs.	119,418	169,394	217,418	270,375	408,850	525,697	531,331	642,855
United Kingdom .....lbs.	19,833	20,405	5,800	5,729	35,939	34,710	17,602	18,354
Other countries .....lbs.	11,130	13,162	4,099	4,475	73,338	94,726	19,783	19,071
Casein or lactarene .....lbs...dut.	3,159,458	421,053	3,400,548	407,417	8,595,026	1,188,957	9,320,675	1,082,356
Kaolin, china, and paper clay .....tons...dut.	23,445	242,090	21,366	237,348	59,832	595,607	55,461	604,470

(Continued on page 58)

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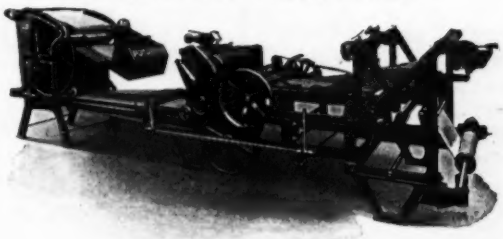

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PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 56)

EXPORTS—PAPER

	March 1928 Quantity	March 1928 Value	March 1929 Quantity	March 1929 Value	Three Months Ending March 31 1928 Quantity	Three Months Ending March 31 1928 Value	Three Months Ending March 31 1929 Quantity	Three Months Ending March 31 1929 Value
Paper and Manufactures (total)	.....	$2,740,820	.....	$3,441,992	.....	$7,552,056	.....	$10,179,530
Printing paper—								
News print paper ..... lbs.	1,707,788	63,014	3,151,773	121,340	5,744,908	226,077	10,100,017	369,626
Exported to—								
Canada ..... lbs.	27,607	1,283	45,691	2,300	70,887	3,289	148,424	7,731
Central America ..... lbs.	92,723	3,293	83,084	2,632	279,446	10,057	325,569	11,675
Cuba ..... lbs.	653,561	23,361	280,654	11,103	1,187,383	46,555	820,881	29,885
South America ..... lbs.	345,075	13,560	1,034,372	40,566	1,062,018	40,829	3,423,696	124,850
China, Hong Kong, and Kwantung ... lbs.	39,945	1,598	618,389	19,714	123,314	4,962	1,787,932	59,594
Philippine Islands ..... lbs.	420,912	15,608	808,405	28,548	2,777,123	110,637	3,062,067	109,664
Other countries ..... lbs.	127,965	4,311	281,178	16,477	344,737	9,748	531,448	26,225
Book paper, not coated ..... lbs.	1,581,957	129,625	2,598,553	189,207	5,155,908	404,142	10,079,731	716,134
Exported to—								
Europe ..... lbs.	10,379	2,676	123,116	16,423	116,682	11,039	740,894	62,403
Canada ..... lbs.	445,532	30,035	880,665	53,611	1,440,654	98,389	3,086,350	180,503
Mexico ..... lbs.	60,644	10,374	51,814	5,446	150,955	20,061	147,379	15,810
Cuba ..... lbs.	646,984	48,880	408,706	27,589	1,201,133	90,510	1,057,792	74,992
Argentina ..... lbs.	63,791	5,013	160,256	12,849	118,654	12,115	798,508	69,496
Other South America ..... lbs.	73,772	6,579	89,624	7,103	310,033	25,968	361,558	32,203
China, Hong Kong, and Kwantung ... lbs.	16,065	2,434	13,440	806	811,062	58,116	1,848,965	111,503
Philippine Islands ..... lbs.	70,253	7,274	526,532	32,564	317,686	24,520	1,166,933	74,855
Australia ..... lbs.	33,571	3,849	166,194	21,696	193,579	21,609	426,898	29,698
Other countries ..... lbs.	160,966	12,511	178,206	11,120	495,470	41,815	444,454	34,671
Cover paper ..... lbs.	196,341	33,158	162,150	28,123	502,345	84,053	510,568	90,537
Grease-proof and waterproof paper ..... lbs.	318,296	43,666	187,654	35,088	744,093	101,905	833,038	136,973
Overissue newspapers ..... lbs.	.....	.....	14,105,924	168,421	.....	.....	35,213,805	400,579
Wrapping paper ..... lbs.	2,688,974	200,064	3,662,884	237,436	9,838,171	739,536	11,651,456	749,422
Surface-coated paper ..... lbs.	774,156	95,183	1,863,689	157,177	1,770,293	215,655	5,888,557	527,444
Tissue and crepe paper ..... lbs.	623,458	111,918	384,496	81,049	1,413,383	293,178	1,161,160	248,156
Toilet paper ..... lbs.	571,180	59,354	597,023	69,057	1,291,318	143,222	1,858,448	212,371
Paper towels and napkins ..... lbs.	325,465	37,263	376,792	37,792	767,078	94,431	854,747	99,297
Box board ..... lbs.	2,614,566	79,523	2,817,317	80,457	10,517,372	324,520	13,621,065	361,118
Bristols and bristol board ..... lbs.	169,052	18,824	343,859	33,294	475,896	44,647	815,962	78,998
Other paper board and straw board ..... lbs.	3,709,002	179,805	4,194,874	194,903	9,703,095	477,775	11,118,296	514,063
Sheathing and building paper ..... lbs.	1,078,202	40,626	2,121,193	71,376	2,984,310	112,841	5,773,166	206,605
Fiber insulating lath or board ..... sq. ft.	.....	.....	3,643,887	119,298	.....	.....	5,784,923	193,162
Wall board of paper or pulp ..... sq. ft.	3,924,922	123,375	6,184,109	221,598	10,545,256	351,319	16,377,581	541,627
Blotting paper ..... lbs.	375,200	42,659	334,040	37,232	1,050,714	125,328	965,495	112,285
Filing folders, index cards, and other office forms ..... lbs.	162,714	57,245	161,254	51,626	359,190	129,437	445,519	157,262
Papeteries (fancy writing paper) ..... lbs.	52,369	13,413	60,133	13,947	199,310	37,076	165,414	38,503
Other writing paper ..... lbs.	2,377,505	257,311	2,547,235	277,047	5,558,279	665,778	8,205,591	876,905
Paper hangings (wall paper) ..... yds.	4,175,600	95,345	4,046,638	86,520	14,284,650	268,525	13,918,403	268,714
Paper bags ..... lbs.	763,087	75,095	1,111,758	103,057	2,174,132	200,275	2,972,144	265,268
Boxes and cartons ..... lbs.	2,161,437	150,875	3,311,467	180,574	6,134,678	435,629	8,072,659	488,458
Envelopes ..... lbs.	253,537	41,011	260,434	42,864	617,671	102,338	588,779	100,874
Vulcanized fiber sheets, strips, rods, and tubes . lbs.	404,648	111,619	658,306	157,840	1,116,058	317,661	1,814,908	449,715
Manufactures of vulcanized and indurated fiber . lbs.	68,981	17,084	17,049	8,069	124,861	38,807	75,647	26,175
Cash-register and adding-machine paper ..... lbs.	148,418	16,803	340,944	35,159	515,585	56,080	1,164,353	114,770
Other paper and paper products	.....	646,962	.....	602,441	.....	1,561,821	.....	1,794,549
WOOD PULP AND PAPER STOCK								
Sulphite wood pulp ..... tons	2,031	136,048	4,031	245,919	4,158	252,242	11,905	652,820
Soda wood pulp ..... tons	40	3,008	120	9,818	438	36,217	468	38,122
Other wood pulp ..... tons	532	22,232	698	38,291	728	33,490	1,548	112,854
Rags and other paper stock ..... lbs.	19,246,704	303,949	11,650,439	302,310	54,222,396	938,367	33,470,678	695,672
PAPER AND PULP MILL MACHINERY								
Paper and pulp mill machinery ..... lbs.	.....	262,506	.....	212,697	.....	950,926	.....	673,872

Fair Paper Demand In Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 27, 1929.—Although in some lines there is a fair demand for paper here, the distributors are inclined to be very careful in their buying. One of the causes for this is that many of the large jobbing houses have more slow moving stock on hand than they like to have in view of the present demand and have curtailed their buying to essentials, which include the better grades of paper that are moving rather actively. It is almost certain that the second quarter will show an increase in sales of fine papers over the same period last year. Reports from printers and advertisers indicate that there likely will be a continued good demand for these grades during the remainder of the quarter.

Demand for board stocks for the box trade continues fair. Most of the box factories are having a good business and are buying their requirements. It is probable that business is a little better in this line than last year. The news print situation remains unchanged.

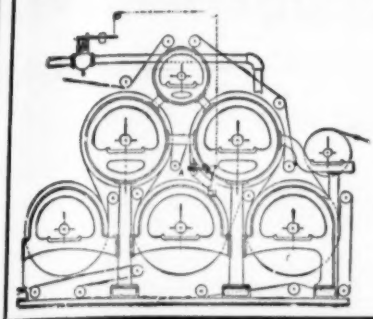
U. S. Corrugated Fiber Box To Build

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 27, 1929.—In addition to rebuilding the warehouse of the United States Corrugated Fiber Box Company here, which recently was partially destroyed by fire, officials of the company have announced plans for the construction of a new two-story building in which will be housed general offices for the company's plants at Indianapolis, Wheeling, W. Va., and Dayton, Ohio.

The announcement was in reply to a letter sent by the local Chamber of Commerce in which assistance was offered in laying plans for rebuilding the warehouse and parts of the company's plant which were destroyed by fire. According to Howard J. Lacey, president of the company, the new office building will be erected on a site 80 by 100 feet. The building will be an increase of four times the capacity of the present general offices of the company. It will be of fireproof construction and will house a fireproof vault.

The Pickles Drying Regulator



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will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

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WIRES

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Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MAY 25, 1929

SUMMARY

Wall paper .....37 pkgs., 31 bls., 19 cs.
Paper hangings .....56 bls., 17 cs.
News print .....1,264 rolls
Printing paper .....136 rolls, 100 bls., 136 cs.
Wrapping paper .....2 rolls, 84 cs.
Packing paper .....2 cs.
Drawing paper .....1 cs.
Filter paper .....18 cs.
Tissue paper .....70 cs.
Colored paper .....8 cs.
Decalcomania paper .....65 cs.
Surface coated paper .....188 cs.
Metal paper .....11 cs.
Gold coated paper .....11 cs.
Photo paper .....1 cs.
Parchment paper .....23 bls.
Writing paper .....12 cs.
Note paper and envelopes.....6 cs.
Stencil paper and ink .....76 cs.
Crepe paper .....4 cs.
Transparent greaseproof paper .....61 cs.
Pressed paper .....8 cs.
Cover paper .....6 cs.
Straw board .....399 pkgs.
Miscellaneous paper .....219 rolls, 86 bls., 48 cs.

WALL PAPER

F. J. Emmerich, Caronia, Southampton, 2 bls.
G. J. Hunken, Stuttgart, Bremen, 1 cs.
J. E. Bernard & Co., Pennland, Antwerp, 37 pkgs.
F. J. Emmerich, New York, Hamburg, 18 bls.
S. Stern Stiner & Co., New York, Hamburg, 1 ble.
Globe Shipping Co., New York, Hamburg, 7 bls.
Guaranty Trust Co., New York, Hamburg, 12 cs.
F. J. Emmerich, Cedric, Liverpool, 3 bls.
Thomas & Pierson, Homeric, Southampton, 1 cs.
A. C. Dodman, Jr., Inc., Homeric, Southampton, 3 cs.
A. L. Diament & Co., Homeric, Southampton, 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Samaria, Liverpool, 8 cs., 5 bls.
A. C. Dodman, Jr., Inc., Samaria, Liverpool, 3 bls.
A. C. Dodman, Jr., Inc., Cedric, Liverpool, 1 ble.
W. H. S. Lloyd & Co., Minnetonka, London, 47 bls., 3 cs.
Whiting & Patterson Co., Inc., Aquitania, Southampton, 6 cs.

NEWS PRINT

Stora Kopparberg Co., Drottningholm, Gothenburg, 78 rolls.
Parsons & Whittemore, Inc., Stuttgart, Bremen, 651 rolls.
Perkins Goodwin & Co., Stuttgart, Bremen, 50 rolls.
Perkins Goodwin & Co., New York, Hamburg, 485 rolls.

PRINTING PAPER

D. C. Andrews & Co., Aquitania, Southampton, 5 cs.
Hensel, Bruckman & Lorbacher, Veendam, Rotterdam, 5 cs.
E. Dietzgen & Co., Veendam, Rotterdam, 29 cs.
H. Schutte & Co., G. Washington, Bremen, 4 cs.
Parsons & Whittemore, Inc., Stuttgart, Bremen, 136 rolls, 17 bls.
P. C. Zuhlke, Stuttgart, Bremen, 24 cs.
Martin & Bechtold, Stuttgart, Bremen, 27 cs.
International Forwarding Co., Pennland, Antwerp, 12 cs.
P. C. Zuhlke, Pennland, Antwerp, 1 cs.
E. Dietzgen & Co., Cleveland, Hamburg, 12 cs.
Perkins Goodwin & Co., Cleveland, Hamburg, 83 bls.
International Forwarding Co., Sacandaga, Antwerp, 11 cs.
Acme Letter File Co., Giulia, Trieste, 6 cs.

WRAPPING PAPER

E. Dietzgen & Co., Veendam, Rotterdam, 38 cs.
Mantle & Co., Caronia, Southampton, 2 cs.
Birn & Wachenheim, Pennland, Antwerp, 41 cs.
Mantle & Co., California, Glasgow, 2 rolls.
Cheramy, Inc., Aquitania, Southampton, 3 cs.

PACKING PAPER

Keuffel & Esser Co., New York, Hamburg, 2 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Caronia, Southampton, 1 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Caronia, Southampton, 14 cs.
A. Giese & Son, Cleveland, Hamburg, 4 cs.

TISSUE PAPER

F. B. Vandegrift & Co., Samaria, Liverpool, 10 cs.
Meadows, Wye & Co., Samaria, Liverpool, 4 cs.
Old Master Paper & Pulp Co., Cleveland, Hamburg, 54 cs.
Dodwell & Co., Mayabashi Maru, Kobe, 2 cs.

COLORED PAPER

Borden Riley Paper Co., Pennland, Antwerp, 8 cs.

DECALCOMANIA PAPER

C. W. Sellers, G. Washington, Bremen, 6 cs.
L. A. Consmiller, G. Washington, Bremen, 16 cs.
B. F. Drakenfeld & Co., Cedric, Liverpool, 20 cs. (duplex).
B. F. Drakenfeld & Co., Cedric, Liverpool, 23 cs. (simplex).

SURFACE COATED PAPER

P. C. Zuhlke, Stuttgart, Bremen, 61 cs.
P. C. Zuhlke, Pennland, Antwerp, 48 cs.
Gevaert Co. of America, Pennland, Antwerp, 48 cs.
Quality Art Novelty Co., New York, Hamburg, 17 cs.
Phoenix Shipping Co., New York, Hamburg, 3 cs.
Hensel, Bruckman & Lorbacher, New York, Hamburg, 1 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Stuttgart, Bremen, 11 cs.

GOLD COATED PAPER

F. Murray Hill, Stuttgart, Bremen, 11 cs.

PHOTO PAPER

American Express Co., Aquitania, Southampton, 1 cs.

PARCHMENT PAPER

Walker, Goulard, Plehn Co., New York, Hamburg, 23 bls.

WRITING PAPER

J. E. Bernard & Co., Homeric, Southampton, 1 cs.
Guibout Freres, Aquitania, Southampton, 9 cs.
Globe Shipping Co., Aquitania, Southampton, 1 cs.
S. Stern Stiner & Co., Aquitania, Southampton, 1 cs.

NOTE PAPER AND ENVELOPES

A. Goodman & Co., California, Glasgow, 6 cs.

STENCIL PAPER AND INK

Arlac Dry Stencil Co., New York, Hamburg, 76 cs.

CREPE PAPER

Globe Shipping Co., New York, Hamburg, 4 cs.

TRANSPARENT GREASEPROOF PAPER

Central Union Trust Co., New York, Hamburg, 61 cs.

PRESSED PAPER

S. N. Hadley & Co., Cleveland, Hamburg, 8 cs.

COVER PAPER

International Forwarding Co., Cleveland, Hamburg, 6 cs.

STRAW BOARD

Scribner Press, Veendam, Rotterdam, 399 pkgs.

MISCELLANEOUS PAPER

Old Town Ribbon & Carbon Co., Estrella, Marseilles, 12 cs.
H. Reeve Angel & Co., Inc., Havre Maru, Kobe, 6 cs.
American Express Co., Caronia, Southampton, 1 cs.
C. K. MacAlpine & Co., Drottningholm, Gothenburg, 86 bls.
D. S. Walton & Co., Drottningholm, Gothenburg, 211 rolls.
Haas Bros., Drottningholm, Gothenburg, 8 rolls.
P. C. Zuhlke, Pennland, Antwerp, 2 cs.
Steffens Jones Co., Maybashi Maru, Kobe, 2 cs.
Keller Dorian Paper Co., Aquitania, Southampton, 25 cs.

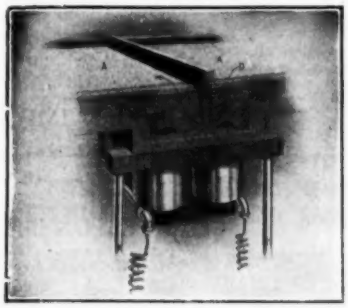
RAGS, BAGGINGS, ETC.

A. W. Fenton, Inc., Marengo, Newcastle, 8 bls. rags.
Brown Bros. & Co., Marengo, Newcastle, 69 bls. bagging.
Equitable Trust Co., Marengo, Antwerp, 245 bls. flax waste.
Castle & Overton, Inc., Marengo, Antwerp, 437 bls. rags.
Castle & Overton, Inc., Marengo, Antwerp, 372 bls. waste.
A. W. Fenton, Inc., Marengo, Antwerp, 154 bls. rags.
D. M. Hicks, Inc., Marengo, Antwerp, 110 bls. flax waste.
Royal Manfg. Co., Marengo, Antwerp, 128 bls. cotton waste.
Downing & Co., Marengo, Antwerp, 35 bls. rags.
Katzenstein & Keene, Inc., Marengo, Antwerp, 66 bls. rags.
Katzenstein & Keene, Inc., Marengo, Antwerp, 220 bls. bagging.
Equitable Trust Co., Marengo, Antwerp, 80 bls. rags.
American Union Bank, Marengo, Antwerp, 209 bls. rags.
Standard Bank of South Africa, Marengo, Antwerp, 118 bls. rags.
Standard Bank of South Africa, Coahoma County, Rotterdam, 48 bls. cotton waste.
A. W. Fenton, Inc., Coahoma County, Rotterdam, 67 bls. rags.
C. Belsky, Coahoma County, Rotterdam, 61 bls. rags.
National City Bank, Coahoma County, Rotterdam, 105 bls. bagging.
Bank of The Manhattan Co., Coahoma County, Rotterdam, 185 bls. rags.
D. M. Hicks, Inc., Coahoma County, Rotterdam, 52 bls. rags.
E. Mayer, Coahoma County, Rotterdam, 106 bls. rags.
E. J. Keller Co., Inc., Coahoma County, ——, 18 bls. rags.
Armstrong Cork Co., Estrella, Barcelona, 190 bls. rags.
W. Schall & Co., Estrella, Barcelona, 178 bls. bagging.
W. Schall & Co., Estrella, Barcelona, 212 bls. rags.
Chase National Bank, Estrella, Barcelona, 50 bls. rags.
E. Mayer, Keifuku Maru, Hamburg, 23 bls. rags.
Equitable Trust Co., Keifuku Maru, Hamburg, 77 bls. rags.
Guaranty Trust Co., Anna C., Bari, 150 bls. rags.
Guaranty Trust Co., Anna C., Bari, 75 bls. bagging.
Brown Bros. & Co., Veendam, Rotterdam, 62 bls. rags.
Chemical National Bank, Veendam, Rotterdam, 34 bls. rags.
E. J. Keller Co., Inc., Veendam, ——, 22 bls. threads.
D. I. Murphy, G. Washington, Bremen, 100 bls. rags.
A. W. Fenton, Inc., G. Washington, Bremen, 28 bls. rags.
Gallagher & Ascher, Caronia, Southampton, 19 bls. rags.
The Barrett Co., Stuttgart, Bremen, 136 bls. rags.
Castle & Overton, Inc., Stuttgart, Bremen, 84 bls. rags.
Castle & Overton, Inc., Samaria, Liverpool, 63 bls. waste.
Banco Com'l Italiane Trust Co., Excello, Genoa, 69 bls. rags.
Jaffe Products Co., Sud Argentino, Havana, 57 bls. rags.
Castle & Overton, Inc., California, Glasgow, 47 bls. paper stock.
D. Galloway, California, Glasgow, 58 bls. paper stock.
J. Cohen Son, Inc., California, Glasgow, 21 bls. paper stock.
A. H. Searle, California, Glasgow, 161 bls. paper stock.
C. R. Spence & Co., California, Glasgow, 104 bls. rags.
T. D. Downing & Co., California, Glasgow, 85 bls. rags.
Brown Bros. & Co., California, Glasgow, 52 bls. rags.
Anglo South American Trust Co., California, Glasgow, 59 bls. rags.
S. Godfrey Co., Vincent, Dunkirk, 17 bls. rags.
Katzenstein & Keene, Inc., Vincent, Dunkirk, 13 bls. rags.
Katzenstein & Keene, Inc., Vincent, Dunkirk, 120 bls. bagging.
D. M. Hicks, Inc., Vincent, Dunkirk, 141 bls. flax pulp.
J. Cohen & Son, Cedric, Liverpool, 18 bls. rags.
Bank of The Manhattan Co., Cedric, Liverpool, 14 bls. rags.
Anglo South American Trust Co., Cedric, Liverpool, 65 bls. bagging.
National City Bank, Cedric, Liverpool, 43 bls. rags.
Castle & Overton, Inc., Ammon, Hamburg, 122 bls. rags.
Equitable Trust Co., Ammon, Hamburg, 7 bls. rags.

(*Continued on page 62*)

INSULATING PAPERS

Are you making paper for insulating purposes? If so, our *Type B Iron Extractors* are a necessary part of your equipment.



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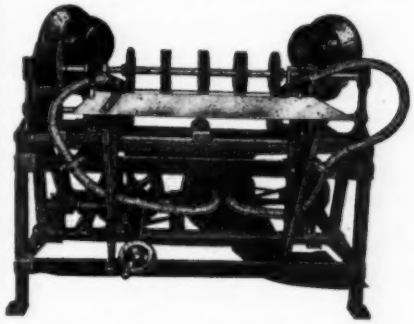

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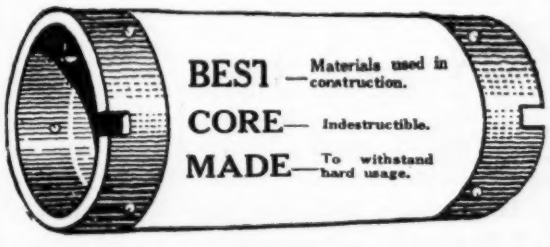

Your two sources of supply are

Canadian Elixman Company HAMILTON, ONTARIO

Elixman Paper Core Company CORINTH, N. Y.

Imports of Paper and Paper Stock

(Continued from page 60)

B. D. Kaplan, Ammon, Hamburg, 16 bls. rags.
A. W. Fenton, Inc., Cleveland, Hamburg, 110 bls. rags.
Amtorg Trading Co., Cleveland, Hamburg, 50 bls. flax waste.
Amtorg Trading Co., Cleveland, Hamburg, 162 bls. cord ends.
Amtorg Trading Co., Cleveland, Hamburg, 1,176 bls. rags.
Castle & Overton, Inc., Cleveland, Hamburg, 5 bls. rags.
Equitable Trust Co., Cleveland, Hamburg, 46 bls. rags.
Manufacturers Trust Co., Cleveland, Hamburg, 15 bls. rags.
B. D. Kaplan, Sacandaga, Antwerp, 7 bls. rags.
Amsinck, Sonne & Co., Inc., Sacandaga, Antwerp, 36 bls. flax waste.
Goldman, Sachs & Co., Exminster, Barcelona, 252 bls. rags.
Chemical National Bank, Exminster, Barcelona, 169 bls. rags.
Castle & Overton, Inc., Exminster, Barcelona, 193 bls. bagging.
E. J. Keller Co., Inc., Artigas, ——, 68 bls. bagging.

OLD ROPE

G. W. Miller & Co., Marengo, Newcastle, 55 coils.
Brown Bros. & Co., Marengo, Hull, 47 coils.
International Purchasing Co., Coahoma County, Rotterdam, 4 coils.
E. J. Keller Co., Coahoma County, ——, 45 bls.
W. Schall & Co., Estrella, Barcelona, 160 coils.
Anglo South American Trust Co., Veendam, Rotterdam, 52 coils.
Brown Bros. & Co., Veendam, Rotterdam, 52 coils.
Brown Bros. & Co., Oscar II, Copenhagen, 281 coils.
Bank of The Manhattan Co., Stuttgart, Bremen, 39 coils.
International Purchasing Co., Excello, Genoa, 185 coils.
Brown Bros. & Co., Boston City, Bristol, 498 coils.
W. Schall & Co., Exminster, Barcelona, 162 coils.

CASEIN

Atterbury Bros., Inc., Sardinian Prince, Buenos Aires, 834 bags, 110,319 lbs.
National City Bank, Sardinian Prince, Buenos Aires, 833 bags.
T. M. Duche & Sons, Sardinian Prince, Buenos Aires, 2,335 bags, 140,100 kilos.
1st National Bank of Boston, Sardinian Prince, Buenos Aires, 1,250 bags, 75,000 kilos.
Equitable Trust Co., Western World, Buenos Aires, 417 bags.
National City Bank, Western World, Buenos Aires, 334 bags.
Kalbfleisch Corp., Western World, Buenos Aires, 1,418 bags.

CHINA CLAY

National City Bank, Boston City, Bristol, 390 bags.

WOOD PULP

M. Gottesman & Co., Inc., Anna C., Sebenico, 4,000 bls. wood pulp.
——, Hjelmaren, ——, 1,525 bls. sulphate.
Chemical National Bank, Hjelmaren, ——, 750 bls. sulphate.
Bulkley, Dunton & Co., Hjelmaren, ——, 1,425 bls. wood pulp.
——, Hjelmaren, ——, 300 bls. wood pulp.
——, Sagauche, Helsingfors, 125 bls. sulphite.
Atterbury Bros., Inc., Oscar II, Oslo, 500 bls. wood pulp, 100 tons.
E. M. Sergeant & Co., Drottningholm, Gothenburg, 400 bls. sulphite.
Woodpulp Service Corp., Drottningholm, Gothenburg, 250 bls. sulphite.
Price & Pierce, Ltd., Drottningholm, Gothenburg, 375 bls. wood pulp.
Castle & Overton, Inc., New York, Hamburg, 2,069 bls. wood pulp, 320 tons.
Castle & Overton, Inc., Cleveland, Hamburg, 4,638 bls. wood pulp.
A. P. W. Paper Co., Nidareid, Sheet Harbor, 16,285 bls. wood pulp, 1,791 tons.

WOOD FLOUR

Bakelite Corp., Coahoma County, Rotterdam, 1,000 bags, 78,900 kilos.
State Chemical Co., Coahoma County, Rotterdam, 556 bags, 33,810 kilos.
The Burnet Co., Coahoma County, Rotterdam, 242 bags, 9,680 kilos.
A. Kramer & Co., Veendam, Rotterdam, 400 bags.
State Chemical Co., Veendam, Rotterdam, 400 bags.

BALTIMORE IMPORTS

WEEK ENDING MAY 25, 1929

National City Bank, Anna C., Bari, 283 bls. rags.
National City Bank, Anna C., Venice, 232 bls. rags.
Congoleum Nairn Co., Vincent, Dunkirk, 712 bls. rags.
S. Shapira & Son, Vincent, Dunkirk, 49 bls. rags.
E. J. Keller Co., Inc., Bilderdyk, ——, 300 bls. wood pulp.
Castle & Overton, Inc., Harburg, Germany, 1,614 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 25, 1929

Bank of New York, Estrella, Valencia, 103 bls. rags.
Fidelity Trust Co., Estrella, Barcelona, 109 bls. rags.
E. J. Keller Co., Inc., Estrella, ——, 140 bls. rags.
E. J. Keller Co., Inc., Estrella, ——, 103 bls. rope.
Chase National Bank, Savoia, Palermo, 152 bls. rags.
Chemical National Bank, Hjelmaren, Stockholm, 750 bls. sulphate pulp.
Lagerloef Trading Co., Hjelmaren, Helsingfors, 477 rolls wood pulp boards.
Irving Trust Co., Hjelmaren, Helsingfors, 180 bls. wood pulp.
——, Hjelmaren, Helsingfors, 6,538 bls. sulphate pulp.
——, Hjelmaren, Helsingfors, 153 bls. sulphite pulp.
Interstate Trust Co., Excello, Genoa, 111 bls. rags.
J. M. Hagy Waste Works, Mayabashi Maru, Osaka, 25 bls. rags.
O'Neill Bros., Mayabashi Maru, Osaka, 35 bls. rags.
Brown Bros. & Co., Sacandaga, Antwerp, 129 bls. rags.
Castle & Overton, Inc., Sacandaga, Antwerp, 571 bls. rags.
A. W. Fenton, Inc., Sacandaga, Antwerp, 124 bls. rags.
Katzenstein & Keene, Inc., Sacandaga, Antwerp, 218 bls. rags.
Equitable Trust Co., Sacandaga, Antwerp, 59 bls. rags.
Chase National Bank, Sacandaga, Antwerp, 66 bls. rags.
G. Mathes & Co., Sacandaga, Antwerp, 82 bls. rags.
E. J. Keller Co., Inc., Sacandaga, Antwerp, 63 coils old rope.
J. A. Steer & Co., Boston City, Bristol, 77 coils old rope.
J. A. Steer & Co., Boston City, Bristol, 215 bls. waste paper.
Bank of The Manhattan Co., Boston City, Bristol, 237 bls. rags.
National City Bank, Exminster, Piraeus, 775 bls. rags.
Fidelity Trust Co., Exminster, Bari, 151 bls. rags.
Bank of The Manhattan Co., Exminster, Bari, 152 bls. rags.
E. J. Keller Co., Inc., Wytheville, ——, 162 bls. rags.
E. J. Keller Co., Inc., Wytheville, ——, 131 bls. bagging.
E. J. Keller Co., Inc., Exchester, ——, 46 bls. rags.
E. J. Keller Co., Inc., London Merchant, ——, 78 coils old rope.
Castle & Overton, Inc., Hagen, Germany, 2,000 bls. wood pulp.
Castle & Overton, Inc., Quaker City, England, 44 bls. rags.
Castle & Overton, Inc., Chicago City, England, 107 bls. rags.
Castle & Overton, Inc., London Merchant, England, 74 bls. rags.
Castle & Overton, Inc., Examelia, France, 132 bls. rags.
Castle & Overton, Inc., Seattle Spirit, Germany, 59 bls. rags.

NORFOLK IMPORTS

WEEK ENDING MAY 25, 1929

Castle & Overton, Inc., Harburg, Germany, 1,921 bls. wood pulp.

CHARLESTON IMPORTS

WEEK ENDING MAY 25, 1929

Castle & Overton, Inc., Shickshinny, England, 24 bls. paper stock.
Castle & Overton, Inc., Shickshinny, England, 93 bls. bagging.

BOSTON IMPORTS

WEEK ENDING MAY 25, 1929

American Express Co., Sacandaga, Antwerp, 7 bls. rags.
Cordingley & Co., Sacandaga, Antwerp, 16 bls. rags.
Cordingley & Co., Sacandaga, Antwerp, 6 bls. thread waste.
Railway Supply & Manfg. Co., Sacandaga, Antwerp, 32 bls. rags.
E. Butterworth & Co., Inc., Sacandaga, Antwerp, 271 bls. flax waste.
E. Butterworth & Co., Inc., Sacandaga, Antwerp, 248 bls rags.
Brown Bros. & Co., Sacandaga, Antwerp, 7 bls. rags.
American Express Co., Sacandaga, Antwerp, 112 rolls paper.
J. T. Lodge, Sacandaga, Antwerp, 4 bls. rags.
National Shawmut Bank, Sacandaga, Antwerp, 35 bls. rags.
Castle & Overton, Inc., Hagen, Germany, 5,224 bls. wood pulp.
Castle & Overton, Inc., Binnendyk, Holland, 1,020 bls. wood pulp.
Castle & Overton, Inc., Harburg, Germany, 1,054 bls. wood pulp.
Castle & Overton, Inc., Mississippi, England, 17 bls. hemp twine.
Castle & Overton, Inc., Mississippi, England, 59 bls. waste paper.
Castle & Overton, Inc., Mississippi, England, 52 bls. old string.
E. J. Keller Co., Inc., Taketoyo Maru, ——, 400 bls. rags.
E. J. Keller Co., Inc., Hagen, ——, 46 bls. rags.

PORTLAND IMPORTS

WEEK ENDING MAY 25, 1929

M. Gottesman & Co., Inc., Sagauche, Hango, 2,400 bls. wood pulp, 406 tons.
Lagerloef Trading Co., Sagauche, Hango, 2,139 bls. wood pulp, 356 tons.
——, Sagauche, Hango, 19,997 bls. wood pulp, 3,421 tons.
——, Sagauche, Helsingfors, 256 bls. wood pulp.
Central National Bank, Sagauche, Helsingfors, 1,228 bls. wood pulp, 203 tons.
——, Hjelmaren, Helsingfors, 1,671 bls. sulphite.
——, Hjelmaren, Helsingfors, 8,361 bls. sulphate.

Houghton on Industrial Plant Lubrication

E. F. Houghton & Co., manufacturers of oils and leathers for the industries, have just issued the first of a series of booklets prepared by their research staff, entitled "Houghton on Industrial Plant Lubrication."

The booklet covers the subject of industrial plant lubrication in a very interesitng and comprehensive manner and is profusely illustrated. Copies may be obtained free of charge on application.

Awards for Distinctive Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 29, 1928.—The Secretary of the Treasury has awarded to Crane & Company the contract for furnishing approximately 2,300,000 pounds of distinctive paper at 47.5 cents per pound bids for which were opened early in April. This is for the fiscal year beginning July 1, this year. The Collins Manufacturing company will furnish about 200 tons of the same at 47 cents.

Pulp Mill Knives for
Chippers
Barkers
Hogs
Shredders

Paper Mill Knives for
Washers
Beaters
Refiners
Jordans
Rotary Sheet Cutters
Trimmers
Flat Bed Cutters

Bolton Quality
BED PLATES
Maintain straight, clean, square edges over their entire length—wear evenly—last longer.
Elbow—Triple angle, diagonal fibre drawing—Sharp rapid reduction.
Write for information and prices.

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Specialists in pulp and Paper Mill Knives For Twenty-Five Years

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The TRIMBEY-SHEVLIN "Junior"

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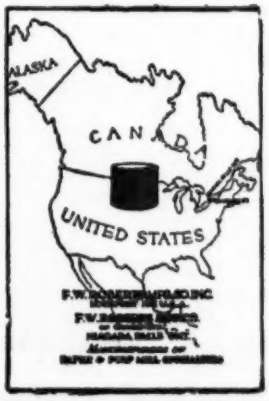

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, May 29, 1929.

Most of the business transacted in the local paper market during the past week was along routine lines. Demand for the various standard grades was seasonal. Sales forces of the leading paper organizations are keeping up their efforts to secure new business before the usual midsummer lull. Prices continue to hold up to schedule, in most instances.

Production of news print continues to be maintained at around 85 per cent of capacity in the United States and Canada and shipments are going forward in satisfactory volume. Stocks of news print paper at the mills are not excessive. Prices are generally holding to previously quoted levels and there is little talk of concessions around.

Paper board output has declined slightly and demand is not quite so persistent as of late. No further price changes were recorded. Some improvement was noticed in the fine paper market. The tissue mills are booked two weeks ahead with orders. Demand for kraft paper was slightly better and supplies are moving into consumption in good volume.

Mechanical Pulp

Conditions in the ground wood pulp market are practically unchanged. Production is being maintained in large enough volume to take care of immediate requirements, although there are no indue accumulations. Prices on both domestic and imported grades are holding to schedule and shading is infrequent.

Chemical Pulp

Steadiness continues to prevail in the chemical pulp market. Imported No. 1 strong unbleached sulphite is still in an exceptionally strong position, with offerings limited and prices firm. Domestic bleached soda is in better demand than for some time and is now quoted at $3.40, f.o.b. pulp mill. All other grades are holding to schedule.

Old Rope and Bagging

The old rope market continues active. Both domestic and imported grades of manila are in persistent request and prices are holding to recently quoted levels without difficulty. Mixed strings have been moving in satisfactory volume of late. Trading in the bagging market was mostly along routine lines. Prices remain unchanged.

Rags

Paper mill interest in the domestic rag market was well sustained. Cotton cuttings are moving into consumption at an excellent pace. Domestic roofing rags are fairly active. Mixed rags continue in moderate request. The foreign rag market is exhibiting a slightly better trend although prices asked abroad are still considered high, in some quarters.

Waste Paper

No radical changes were recorded in the paper stock market during the past week. Demand for the lower grades was slightly better, especially for mixed paper and strictly folded news. Old kraft machine compressed bales are in improved request and are now quoted at from $1.85 to $1.95. Soft white shavings cntinue to move freely.

Twine

During the past week a moderate volume of business was transacted in the local twine market. However, the industry is considered to be in a sound position for the time of year, in most quarters and more lively trading is confidently anticipated in the near future. Prices are holding to previously quoted levels.

Change in Commercial Standards Monthly

For the past four years *The Commercial Standards Monthly*, has been the medium through which the Division of Simplified Practice, of the Bureau of Standards, United States Department of Commerce, has kept American industry advised of the progress being made in the elimination of waste through simplification and standardization. This mimeographed bulletin summarizes the projects under consideration by industry in cooperation with the Bureau of Standards; meetings held, and wherever possible, the work being done by individual concerns and non-governmental groups in the movement to eliminate waste in industry.

According to an announcement of Ray M. Hudson, assistant director of the Bureau of Standards, in charge of the Commercial Standardization Group, the monthly builetin, starting with the July 15, 1929 issue, will hereafter appear as a standard size printed magazine and will be on a subscription basis. The yearly subscription price will be one dollar ($1.00), payable in advance to the Superintendent of Documents, Government Printing Office, Washington, D. C.

In his announcement of this change Mr. Hudson stated that S. F. Tillman, associated with the Division of Simplified Practice for several years has been appointed as the editor of *The Commercial Standards Monthly*. Prior to becoming connected with the Bureau of Standards, Mr. Tillman was on the press information staff of the U. S. Veterans' Bureau.

In 1925 he was a member of the news staff of the Army and Navy Journal, leaving to organize the Army and Navy News Service. In addition to working on Washington and Texas newspapers, Mr. Tillman was one-time managing editor of the Army and Navy Magazine.

Bates Valve Bag Building New Plant

OSWEGO, N. Y., May 27, 1929.—The Bates Valve Bag Corporation has broken ground for its new plant on the Oswego Industrial Company tract directly west of the Taggart Paper and Bag plant and indications are that it will be ready for occupancy late in the summer. A large force of workmen are being employed on the project and it will be rushed to completion. All of the bag filling devices of the Bates Corporation will be made at the local plant when it is in operation. The firm's plant is now located in Chicago and as soon as the new site is ready the entire equipment will be moved to this city which is expected to become the center in North America for the largest volume of manufactured bag filling machinery. The new structure will be 200 feet wide and 400 feet long and construction is being carried on under the supervision of Fred C. Baker, construction superintendent of the St. Regis Company.

Spaulding Mill Installs Digester

PORTLAND, Ore., May 24, 1929.—The Spaulding Pulp and Paper Company, Newberg, Ore., is installing a third digester and an additional boiler and blow pits. The addition of this new equipment will increase the output of the mill 50 per cent.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

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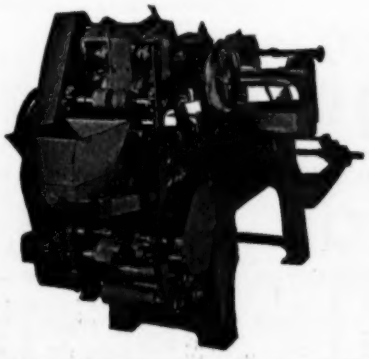

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Paper Bag Machinery

Get My Quotations Before Placing Your Orders
Special Machinery Designed and Built

A. L. PARRISH
1702 Robinson St., South Bend, Ind.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, May 29, 1929.

BLANC FIXE.—Conditions in the blanc fixe market are practically unchanged. Both the pulp and the powder are in seasonal request. Prices are unaltered. The pulp is quoted at from $42.50 to $45.00 per ton, while the powder is selling at from 3¼ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—No radical changes were recorded in the bleaching powder market. The contract movement is well up to average for the time of year. Prices are holding to schedule, in most instances. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—The casein market was only moderately active. Domestic casein is quoted at from 16 cents to 17 cents per pound, while standard ground imported is selling at from 15½ cents to 16 cents per pound and finely ground at from 16½ cents to 17 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Supplies of this product are moving into consumption in heavy volume. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is in a fairly satisfactory position. Contract shipments are going forward at a steady pace. Prices are unchanged. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Shipments against contract are going forward to the pulp and paper mills in good volume. Prices remain steady and unchanged. Chlorine is quoted at 3 cents per pound, in tanks, or multi-unit cars, at works, on standard contracts. The spot quotation ranges from 3¼ cents to 3½ cents per pound.

ROSIN.—Trading in the rosin market was fairly active. Prices remain unchanged. The grades of gum rosin used in the paper mills are quoted at from $8.35 to $8.45 per 280 pounds, in barrels, ex dock. Wood rosin is selling at from $6.50 to $7.30 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Due to the fact that the Committee on Ways and Means has amended the Tariff Bill by taking salt cake off the free list and recommending a duty of $4 per ton, the salt cake market is exhibiting a strong undertone. While no price changes have been announced, the outlook is very involved.

SODA ASH.—Mill demand for soda ash is persistent. Supplies are moving into consumption at a steady pace. Prices are generally holding to previously quoted levels. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bags, $1.32½; and in barrels, $1.55.

STARCH.—The starch market was moderately active during the past week. Contract shipments are going forward at a normal rate for the season. Prices are generally holding to schedule, without difficulty. Special paper making starch is still quoted at $3.82 per 100 pounds, in bags, and at $3.99, in barrels.

SULPHATE OF ALUMINA.—Production of sulphate of alumina is being maintained in sufficient volume to take care of current requirements. Prices remain unchanged. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.55 and iron free at $1.95 to $2.05 per 100 pounds, in bags at works.

SULPHUR.—The sulphur market is in a sound position. Contract shipments are moving in good volume. Sulphur is quoted at $18 per ton, in lots of 1,000 tons, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Normal conditions prevail in the talc market. Demand is fairly active and supplies are moving into consumption in satisfactory volume. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines, while imported talc is selling at from $18 to $20 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	32.50	@37.50
Straw	52.50	@55.00
Chip	30.00	@35.00
Binders' Boards	65.00	@70.00
Sgl. Mla. Ll. Chip	42.50	@45.00
Wood Pulp	80.00	@85.00
65 Test Jute Liner	52.50	@ —
85 Test Jute Liner	55.00	@ —

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.40
Easy Bleaching	2.90	@ 3.10
No. 1 strong unbleached	2.60	@ 2.80
Mitscherlich unbleached	2.60	@ 3.25
No. 2 strong unbleached	2.40	@ 2.50
No. 1 Kraft	2.40	@ 2.75
No. 2 Kraft	2.35	@ 2.50
Sulphate—		
Bleached	3.60	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.50
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.50	@ 3.30
Soda Bleached	3.40	@ —
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.65	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.50	@ 8.00
New Unbleached	11.00	@11.50
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Washables	4.75	@ 5.25
Fancy	5.75	@ 6.25
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

No. 1 White Linens	7.50	@ 8.25
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	4.50	@ 5.50
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	2.00	@ 2.10
Dutch Blue Cottons	2.25	@ 2.40
French Blue Linens	2.75	@ 2.85
German Blue Linens	2.35	@ 2.55
German Blue Cottons	2.15	@ 2.25
Checks and Blues	1.85	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.60	@ 1.65
Old Shopperies	1.55	@ 1.60
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	4.50	@ 4.75
Domestic	4.75	@ 5.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.50	@ 2.60
White envelope cuttings	3.00	@ 3.50
Flat Stock—		
Stitchless	1.60	@ 1.70
Overissue Mag.	1.60	@ 1.70
Solid Flat Book	1.50	@ 1.60
Crumpled No. 1	1.10	@ 1.20
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.70	@ 1.80
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.75	@ .80
Container	.55	@ .65
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.85	@ 1.95
News—		
No. 1 White News	1.65	@ 1.75
Blue Overall	7.50	@ 8.00
Strictly Overissue	.75	@ .80
Strictly Folded	.55	@ .60
No. 1 Mixed Paper	.42½	@ .47½
Common Paper	.30	@ .35

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Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine			
Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.34
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¼
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.70	@	.75
Ledger & Writings	1.25	@	1.35
Solid Books	1.25	@	1.30
Blanks	1.40	@	1.50
Krafts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.65	@	1.75
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.75	@	.80
Folded News (overissue)	.80	@	.85
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.60	@	.65
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.09	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.05½	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.09½	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.08	@	.09
Manila Sul., No. 1	.04	@	.05½
Manila No. 2	.03	@	.04
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.06½	@	.07
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	75.00
News Board	35.00	@	40.00
Chip Board	32.00	@	40.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft.	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03¾
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.80	@	1.90
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.40	@	1.50
No. 2 Books, light	1.05	@	1.15
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.65	@	.70
Straw Board, Chip	.65	@	.70
Binders Board, Chip	.65	@	.70
Overissue News	.85	@	.90
Old Newspaper	.50	@	.55

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2	2.00	@	2.25
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.04½	@	.05½
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	50.00
Single White, Patent Coated Newsboard Bender	65.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.40	@	2.50
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.05	@	1.10
White Blank News	1.60	@	1.65
Old Kraft	—	@	1.80
Print Manila	.80	@	.90
No. 1 Mixed Paper	.47½	@	.50
Overissue News	.65	@	.70
Old Newspapers	.50	@	.52½
Box Board, Chip	.55	@	.60
Repacked	.02½	@	.02¾
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.65
Manila Rope—			
Foreign	4.50	@	4.75
Domestic	5.00	@	—
Mixed Strings	.90	@	1.00
Jute Wool Strings	—	@	1.00
Scrap Burlaps	1.25	@	1.35
Scrap Sisal	1.60	@	1.80
Scrap Sisal for shredding	—	@	1.65
Wool Tares, heavy	—	@	1.37½
New Burlap Cutting	1.90	@	2.00
Australian Wool			
Pouches	2.75	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.10	@	.10½
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.50	@	—
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags
(F. o. b. Boston)

Dark Cottons	1.60	@	1.65
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.10	@	5.50
New Checks & Blues	4.25	@	4.50
Old Fustians	1.90	@	—
Old Linsey Garments	1.85	@	1.90

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—
(Delivered Toronto)			
News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

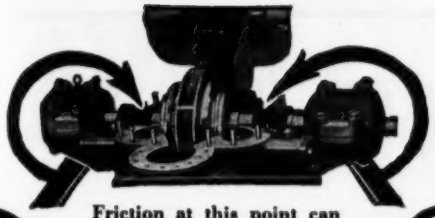
Ground Wood	30.00	@	31.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	77.00	@	—
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.10	@	.10½
Fancy Shirt Cuttings	.05½	@	—



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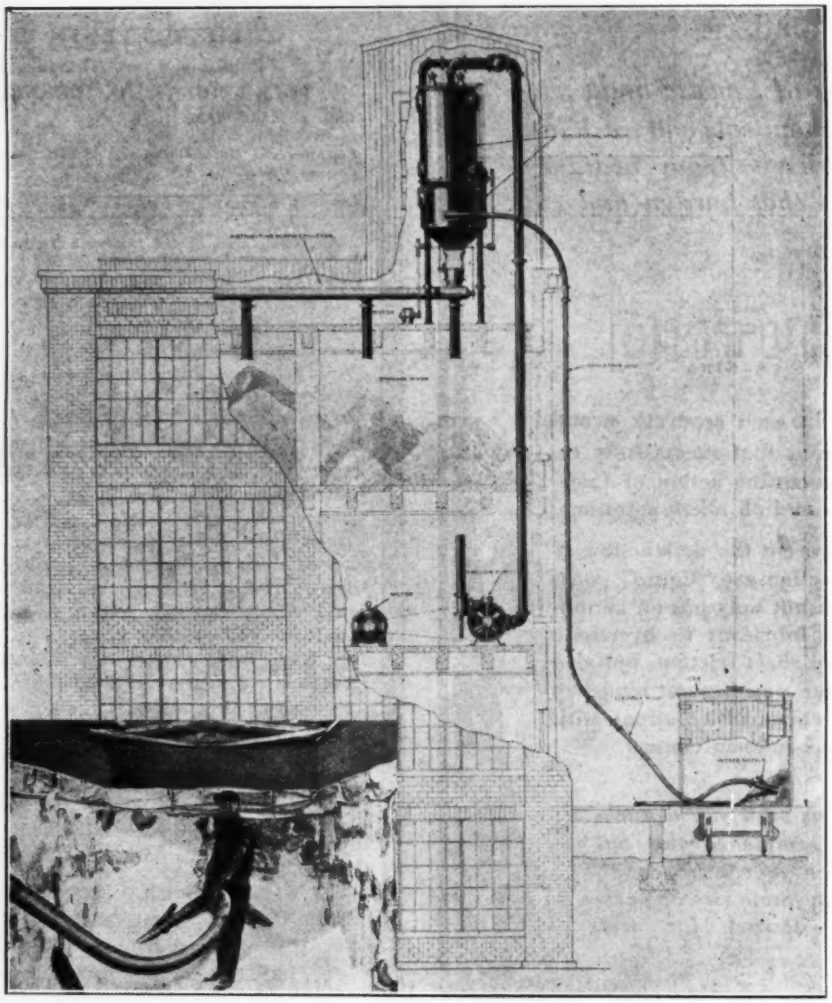

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